Human Behaviour

A New Approach

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Illustrations and Drawings by Dennis Newland

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Illustrations

There are many remarkable things, and
nothing more remarkable than Man.

Sophocles

To Niko Tinbergen

Preface

We are living, beyond doubt, in the most exciting of all ages through which man has yet passed. A succession of increasingly rapid developments has changed the world in a generation or two out of all recognition. Most of all is this true of the social scene. The requirements of technology have spread the advantages of education among vast numbers of people; cheap printing, radio, cinema and television have brought the world into everyone's everyday life. Almost any citizen of the great modern civilizations can see more of the world in a few weeks than the mightiest rulers of the past could see in their life-times. In these conditions the rigid local rules which governed human behaviour in the past are vanishing like morning mists. Barely a century ago a farm labourer could say, 'Everyone behaves like this', when he knew only a handful of people living within a few miles of him; today he can say nothing of the sort. The axiom 'what was good enough for our fathers is good enough for us' no longer has any meaning; for anyone can see that his or her fathers lived in another world. Thus there exists at present a widespread search for understanding of human behaviour without parallel in the history of man.

The human individual, thus aroused and awakened, looks around him and sees a strange thing. If he takes in the whole global scene, he observes that as a species we can girdle the earth with satellites, and tap the energy of the atomic nucleus, and have nearly overcome bacterial diseases, and are on the track of viral ones, and that with all this we still know no certain way to prevent economic upheaval, over-population or even war. If he focuses on his own circle of interpersonal relations, he sees himself and his friends struggling for happiness and beset by every kind of intangible obstacle, marrying the wrong partners or unable to live with the right ones, trying to do the best for their children and often at a loss how to bring this about. For none of us can now help observing how much of our own behaviour, whether as individuals or as a species, is compulsive, automatic and destructive of our enjoyment and happiness. And yet, for the first time, we can see that these automatisms are not a necessary

and inevitable part of the order of nature, but obstacles which we could overcome if only we could understand more of ourselves and other people. For the first time, the understanding and control of human behaviour is seen to be not only necessary but possible—possible if only we fully realize how elementary, how nearly negligible our present knowledge is, when compared with the knowledge of the physicist, the engineer, or the student of infectious disease.

It is a natural outcome of this that a great demand is beginning to make itself felt for factual information about human affairs. Histories, biographies, books of travel are read as never before; nor is it an accident that even a television game, if it is to be specially popular, must concern itself (like 'What's My Line?') with the manner in which other people live. Above all, people want some positive guidance, some reliable signposts, on the path of exploration. They no longer ask so urgently for all the answers, for they begin to realize that nobody knows them, that there is no élite of specialists who can give them, in the field of human behaviour, the detailed and confident bulletins they can often obtain from the physicist or the engineer; and this not for want of able explorers, but simply because the science of human behaviour is the youngest of all. Moreover, this is a field in which we are, inevitably, all specialists. We can all make observations on human behaviour in every waking hour, if only we know how to observe; and every waking hour provides both opportunity and challenge for the application of what we can observe. There is need, then, not for textbooks of human behaviour, but for books designed to show people how they can explore the field for themselves. It is such a book that we have tried to write.

It may be worth while here to outline the plan and structure of the book, though so bald a summary may convey little meaning until enriched with detail. In our first chapter we begin with two propositions: that most of us as adults live disturbingly automatic and routine lives, and that this is not for want of creative and imaginative gifts and the *capacity* for vitality and happiness, for nearly all of us show these qualities in considerable measure when we are children. The problem is thus fairly stated: is there an inevitable process of senescence or deterioration to which we are all subject, or can we call a halt to it, and retain as adults the freedom and flexibility of the child? The inquiry will take us in many directions. To begin with, we must make a brief excursion to the most advanced outposts of science, and examine the difference between automatic and evolutionary mechanisms—between those whose

course is set at the outset, and those which *develop*, as the characters of a good novelist are said to do. We then find that evolutionary mechanisms may either rapidly become automatic, or remain indefinitely progressive, continually enriching themselves in variety of behaviour. Our brains are potentially mechanisms of this latter kind, and this at once provides us with hope; but if we are to continue all our lives to increase our freedom and happiness, we must understand the mechanism of progress itself. This, in the context of human behaviour, is the process of *exploration*, whereby we continually enrich our minds and diversify our behaviour.

In the second chapter, we turn to the organization of behaviour in human and lower animal individuals. We contrast the instinctive mechanisms of animals, which make their behaviour largely automatic, with the new development in man of what is called intelligence, a capacity for freedom and escape from the automaton, which may also be called the capacity to enjoy life. But then we encounter a corruption of intelligence, called rationalization, a process whereby we persuade ourselves that we are acting freely when our behaviour is most automatic and compulsive; and we see how the protracted exercise of this destructive process may reduce us to a condition not much less automatic than that of the lower animals.

In the third chapter, we examine the ways in which human individuals may affect each other, and the sorts of relationship into which they can enter. We now find that intelligence in the individual is intimately connected with free communication between individuals, and with that positive and constructive interplay which we call co-operation. At the same time we find that individuals can also interact in destructive and automatic ways, which we may call competitive and exploitive, and how in these interactions the process of social deception can play the counterpart of rationalization in the individual. Between these incompatible modes of relationship—co-operative and competitive-exploitive—there is a tension which accounts for much of the present human crisis, and if we are to advance we must altogether outgrow the destructive mode. The question then arises, how are such outdated modes of behaviour maintained and perpetuated?—and the answer, or part of it, lies in a process of behavioural inheritance, the theme of the fourth chapter, whereby, through defective mating and parental behaviour, automatic modes of behaviour are transmitted from parent to child, especially during the crucial phases of development of intelligence in the individual. The account at first ignores, and then (in the fifth chapter) attempts to

take into account the remarkable complexity of social situations within a single family.

In the sixth chapter we touch on the core of the whole pathological process—the development of that strange distortion of behaviour which we have called pseudosex, so readily is it confused with genuine enjoyable sexual behaviour, though the latter is one aspect of intelligence and progress, related to these since the dawn of human evolution. It was the weird deployment of pseudosex that Freud first revealed, though he himself failed to make the distinction. In this most important region we find, as a key to the fixity of behavioural inheritance, a process of appeasement of the parents, whereby, through the vicissitudes of the child's early relationships with them, he or she develops a whole structure of rigid instinctive mechanisms, later to be reinforced and finally shaped in the critical period of adolescence. In this dark web we glimpse the tough strands of addiction and phobia.

In the seventh chapter we begin to explore the major distortions of personality which can arise from this process. We see the trends called idealism and cynicism, and the processes of mental and bodily breakdown to which personality is subject. The whole imbroglio can be seen as a struggle against two threats alike destructive of real personality—on the one hand, identification with the automatisms of the parent, on the other that terrible mood of depression which suppresses all activity in any direction.

In the next two chapters (8 and 9) we turn to the world of the great writers, and see how we may take the fullest advantage of their genius for communication. The method is applied in particular to the great Theban plays of Sophocles and to *Hamlet*, and enables us to see how the individual misinterprets and succumbs to the exploitive pressures of a mother or of a father.

And finally, in the last chapter, we draw together many threads spun earlier to analyse the process of cultural evolution, the manner in which progress may come about through the interaction of massive cultural tendencies. We see that the manner in which we have reached our present achievements is beyond our control, and that we can afford no longer to rely upon these great movements; instead, the opportunity is now within our grasp of indefinite progress both as individuals and as a species, but this can be brought about not by the decrees of any kind of élite, but only by ever-increasing exploration by each of us, and ever-increasing communication between all of us. If we can take control of our own evolution,

the rewards for all of us are incalculably wonderful; and on this note of promise we shall close an account in which none of the more appalling or distressing aspects of human behaviour has been glossed over.

Such is the book in outline, but it may be worth while stressing a few central points. Several people who read the book in draft advised us to do just this. They observed that a reader could more easily find his way through this great maze of material if provided at the outset with a few leading clues. With these in mind, he or she could better appreciate the significance of the diverse illustrations, which might otherwise seem diffuse or obscure. For this purpose, we cannot do better than quote a passage in a letter to us from Mr A. V. Cleaver:

It would be valuable to non-specialists, in particular, to have a clearer state-ment, right at the beginning, of exactly what is new in your approach. I take this to be:

(a) Classification of behaviour as 'instinctive', or automatic (as in lower animals), OR as 'intelligent' (as in fully-human, selfconscious, civilized beings).

(b) Suggestion that Freud 'accepted too readily the symbols of infantile rationalization' as being of universal validity—that these really derive from the neurotic fantasies of parents, who, in exploiting their children, ensure the per-petuation of these fantasies in them.

(c) Claim that recognition of (a) and (b) could lead to a continually evolving and progressive state of mind in the individual, with a corresponding state of society.

In taking Mr Cleaver's advice, we found it impossible to improve on his own words, for which we are most grateful. We hope it will appear to the reader that all the varied material in the book contributes to one or more of these major conclusions.

We hope also this book may be of interest to certain special groups of people—such as psychiatrists, social workers, personnel managers, psychologists, psychoanalysts, zoologists, sociologists, anthropologists, educationalists, criminologists, economists, historians, art and literary critics, actors and producers, artists and writers.* In the main, however, we have written this book, not only for one or even several types of specialist, but for anyone of good will who is seeking a clue to the

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* Some of the last-mentioned people may like to read the last three chapters first, turning back to the main stream of the book when they have seen how it will contribute to their special interests.

labyrinth of interpersonal or mass social relations. We have tried our utmost to write in such a way as to be intelligible to anyone. So vast is the field of human behaviour that few specialists are even superficially acquainted with even most of its regions—apart from those who are specifically seeking to cover the field in large part. The terminology of lower animal behaviour is unknown to most students of history or literature; the terminology of what is called cybernetics (an essential part of any general approach—see p. 19) is unknown to many students of lower animal behaviour; these cross-purposes could be multiplied indefinitely. A book written on a large part of the field, therefore, must be written with as little technical terminology as possible. We could not dispense with technical terms altogether, but we have sought always to define them in terms intelligible to anyone and to introduce them repeatedly in various contexts until they become familiar and can be assumed for wider purposes. If anything remains unclear, we should welcome comment or criticism.

To achieve at least relative brevity, we have written the book in a somewhat dogmatic style. If we had qualified wherever appropriate, the book would have been at least twice as long. Most of the content is descriptive, and should not be treated as explanation. It is indeed one of our main theses that nearly all of what we know of human behaviour is still in a descriptive stage, and that explanations will only be won by the vigilant research, not only of specialists but of every exploring individual. We have sought always to express ourselves in such a way that any reader can check our observations for himself, and need take nothing we say on trust. To this end, for instance, we have described some observations and experiments in sufficient detail for the readers to draw their own conclusions, choosing for this purpose examples which required no specialist knowledge for their interpretation. The diverse illustrative matter we have used is not to be taken as adequate evidence for documenting all our assertions, but only as selected illustration of them. The clinical matter alone is a minute selection from a mass of material. This material the reader cannot check, but he or she *can* check the selections of fact from, for instance, history and literature, for here the vast mass from which the sample was drawn is available to all. And a very great deal of our argument can be checked against everyday social experience. Some readers of our MS. drafts objected to our use of clinical material, on the ground that highly disturbed patients are not a fair sample of humanity. To this there are two answers. First, many of our patients, far

from being exceptionally disturbed, are successful human individuals who sought analysis in order to be even more so. Second, we have never encountered any human individual to whom our main conclusions do not appear to apply. Our patients have kindly permitted us to include the clinical material, so arranged as to preserve anonymity, and we are most grateful to them for this. But the observations one makes in social intercourse outside the consulting room are, for obvious reasons, not easily to be published in detail at the present stage of human evolution. In general, we have tried to draw our illustrations from as many fields as possible, in order to keep constantly before the reader's mind the enormous variety of fact which must be confronted by any approach to human behaviour.

For our main purpose of rendering our work open to the scrutiny of anyone, we have also included bibliographical references. It would be absurd to regard these as comprehensive, for a comprehensive bibliography of this subject would overcrowd a large library. But at least the reader interested in pursuing some special question will find, for each of these, a few leads into the literature. We have given these references in the text as names and dates (e.g. Tinbergen, 1951). This method permits ready identification of the references in the list at the end (pp. 497–510), it does not seriously break up the narrative, it reduces the need for footnotes, and above all it introduces the reader to personalities.

We have provided a few heterogeneous appendices at the end of the book. Of these only Appendix 1 is addressed primarily to a group of specialists: it adds nothing to the text, so the non-specialist need not feel excluded from some private gossip; it serves only to explain to these specialists the relation between their terms and ours, which they might otherwise have found confusing. All the other appendices are written in the same style as the rest of the book. The long Appendices 10, 13 and 14 contain important matter omitted from the text to avoid breaking the thread of the narrative. The rest contain supplementary matter, designed to amplify, qualify or document points of varied interest.

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This book grew up in three stages. It began as a short paper read at the Third International Conference on Comparative Behaviour Study, at Groningen, in Holland, in 1955 (Russell and Russell, 1955). It was expanded into a rather long published paper (Russell and Russell, 1957).

Finally, it was re-expanded into the present book, which develops many of the ideas further and in particular provides fairly copious illustrative material. The book is, however, based so largely on the 1957 paper that reiterated reference to the latter would have become tedious. We have therefore only mentioned it in the few instances where it contains more detail than the book itself, or provides the only published source for factual observations.

Owing to the three-stage growth of the book, we have a large number of people to thank for assistance of many kinds at the various stages. Our earlier informants and critics have been acknowledged in the 1957 paper; we shall here briefly record help received during the preparation of the book itself.

The chief single source for the book was a large collection of clinical and theoretical notes by one of us (Claire Russell). The observations on adult patients (nearly all those of C.R.) are selected and condensed from this, from some clinical notes of W.M.S.R., and from notes made by the patients themselves (see p. 178). For nearly all the observations on child patients, however, we are indebted to Mrs C. S. S. Nicholson, who treated these children under C.R.'s supervision. We wish to thank Mrs Nicholson most cordially for permission to report these observations here. As with the adult patients, the material used is only a small sample of that available.

The book itself was written in several stages. After preliminary drafts of some chapters, the whole book was drafted in the summer of 1957, and completely re-written in the spring of 1958. A few alterations have been made since then, and references to papers of ours since published have been brought up to date; but the spring of 1958 can be taken as the reference-point for any general historical observations. A small amount of additional matter will be mentioned in the Addendum (p. 511 ff).

In the earlier drafts and revisions, we were much helped by the comments of people who had read the 1957 paper, including especially Mr R. F. Benton, Dr K. A. A. Campbell, Dr M. R. A. Chance, Sir Julian Huxley, F.R.S., Professor Konrad Lorenz, Mrs C. S. S. Nicholson, Dr J. M. Sprague and Dr Niko Tinbergen. In the last draft and final revisions, we were similarly helped by people who had read the book in MS., namely Mr Ted Allan, Dr M. R. A. Chance, Mr A. V. Cleaver, Mr E. C. Grant, Mr J. H. Mackintosh, Mrs C. S. S. Nicholson, Mr John Nicholson and Dr Niko Tinbergen. To Dr Chance, Mrs Nicholson and Dr Tinbergen, with each of whom one or both of us have worked closely for many years, special thanks are due for the more intangible benefits of

repeated discussion and criticism. We are most grateful to all these people. The usual formula applies: though they have contributed much of positive value, none of them is responsible for any defects of the finished book.

Many of the illustrations are from published sources, each of which is specified in the appropriate place by a reference to the source index. We are grateful to a number of individuals and organizations for permission to reproduce this copyright material. In particular, we must thank N. V. Boekhandel en Drukkerij Voorheen E. J. Brill, Leiden, for Figures 1, 9, 10, 12, 14, 15, 17, 20, 25, 26 and 27, from papers in *Behaviour*; Springer-Verlag and Frau Erika Diebschlag for Figures 6, 7, 8, 11, 2N, 3N and Table I, from a paper by the late Professor E. Diebschlag in the *Zeitschrift für vergleichende Physiologie*; The Clarendon Press and Dr N. Tinbergen for Figures 16 and 18, from *The Study of Instinct*; The University Press of Wayne State University, Detroit, for Figure 22, from a paper in *Human Biology*; and The Company of Biologists Limited, for Figure 23, from a paper in the seventh Symposium of the Society for Experimental Biology.

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Claire Russell
W. M. S. Russell

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Introduction

Heaven lies about us in our infancy!
Shades of the prison-house begin to close
   Upon the growing Boy,
But he beholds the light, and whence it flows,
   He sees it in his joy;
The Youth, who daily further from the east
   Must travel, still is Nature's priest,
   And by the vision splendid
   Is on his way attended;
At length the Man perceives it die away,
And fade into the light of common day.
                                    William Wordsworth

Freedom and Routine

The paintings produced by almost all young children have two things in common. They are technically inexpert, but they are vivid and imaginative. Sooner or later, a change takes place in the paintings of all children who are not destined to be Rembrandts or Picassos. Technically there may be some improvement: principles of perspective may have been inculcated, and the rules of colour mixing. But this is regularly accompanied by a loss of vigour and imaginative abandon. 'One can trace the gradual process of growing up, with its gain in realism and skill. Unfortunately this is often accompanied by a corresponding loss in spontaneity' (Nairn, 1957). One can watch this process at a glance in any good exhibition of children's art where the age-groups are shown in different rooms of a gallery. One simple criterion will serve to illustrate the change (Morris,

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personal communication): the paintings of the younger children fill the whole of the paper available, a sufficient sign of confident exuberance.

As people grow up, the great majority cease to paint at all. Of those who continue to do so, only a handful of individuals in any generation retain the imaginative freedom of the child while acquiring a new mastery of technique. Among the handful, of course, are the great painters of history. 'Now and then the creative frankness may with care be preserved, to become one of the greatest assets a painter can possess' (Nairn, 1957). For most of us, the situation is all too like that of Alice in Wonderland. When we are small, we cannot reach the key of technical assurance; when we are bigger we cannot squeeze through the door into the garden of creative imagination.

This is one instance of that closing of the prison-house which impressed Wordsworth. Such instances could be multiplied. An experienced adult actor who appears with a child may be acted off the stage or screen. We can watch the same trend in mime, in dancing, in musical performance. Children show an unrivalled gift for accurate observation and for communicating what they observe through all the media of human expression. It was the little boy in the Andersen story who both saw and said that the Emperor had no clothes on. One telling illustration comes from an unexpected source—the experience of the police. In his book *Crime and the Police* (1951), Martienssen discusses the differences between witnesses. 'Children', he writes, 'are generally the best witnesses of all. They are unaffected by preconceived adult ideas and they usually describe exactly what they have seen.'

In other words, young human individuals are full of varied and versatile creative potential; few, when adult, realize more than a tithe of this potential in even one pursuit; vanishingly few, like Leonardo da Vinci, retain their versatility. The more one confronts these facts, the greater the impression that human attainment, wonderful as it is, falls far short of what it could be. Nor is this impression in any way contradicted by what we know and conjecture of the function of the human brain— even the bare numerical aspect. The number of nerve cells in the human nervous system is of the order of ten thousand million. 'All artificial automata made by man' [such as the giant computing machines] 'have numbers of parts which by any comparable schematic count are of the order of' a thousand to a million (Von Neumann, 1951). The conclusion seems inevitable that practically every adult is using only a fraction of his brain for constructive purposes.

This appears in other, at first sight less tangible, ways. Everyone must have tried to find words for the enthusiasms and ambitions of the young —one speaks of the 'fire' of youth, or uses some kindred metaphor. 'The Youth . . . by the vision splendid is on his way attended; at length the Man perceives it die away, and fade' into a monotonous routine of life. One still meets, of course, adults who seem to retain this fire— concentrated, perhaps, in some special furnace: artists, scientists, engineers, technicians, industrialists, statesmen (like Sir Winston Churchill), craftsmen (amateur or professional), workers in any field who enjoy what they are doing. But all too little flicker remains in all too many of us by the age of thirty.

It is a problem of central importance, whether this deterioration is *necessary*, whether all Miltons but one must remain mute and inglorious; whether, with Shelley, we must contemplate

> *many a Newton, to whose passive ken*
> *Those mighty spheres that gem infinity*
> *Were only specks of tinsel, fixed in Heaven,*
> *To light the midnights of his native town!*

The poets were thinking chiefly, perhaps, of economic obstacles, of poverty, of lack of opportunity. There is no doubt that, as opportunity spreads, much creative talent is being released; there is little doubt that economic pressures in the past have deprived us of many achievements. Perhaps, for one thing, they helped to rob us of half the incomparably fertile life of Mozart. But the vision fades for rich no less than for poor, and despite economic improvement it continues to fade as relentlessly as ever.

Perhaps we cannot all be Miltons or Newtons, still less Darwins or Shakespeares, but need the differential be so great, and cannot the whole fellowship of mankind move upwards on the scale of versatility and imagination? Perhaps, more to the point, we do not all want to be Darwins or Shakespeares. But what we have been saying applies to other things than science and the arts. It applies to everything that makes for anyone's happiness.

Move the starting-point a little later in life, and we see the same process at work in human relationships; most obviously, perhaps, in those between the sexes. 'Falling in love', as we shall see later, is a term that covers a multitude of unhappy and destructive states of mind. Falling in love with Carmen is like falling in love with cocaine. But the

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term is also used of a quite different experience, the experience, in most intense form, of Romeo and Juliet. Many couples are in love in this vital and positive sense, for a longer or shorter period. While the mood lasts, they enjoy a heightened awareness not only of their own sexual wishes, but of all their sensations. The fiery imagination of childhood returns, enriched with new colours. Between the two partners there is a rapid and liberating interchange of thought and feeling, expressed not only in love-making itself but in all aspects of their relationship. In few couples does this second dawn persist for long in its full splendour. For too many, their relationship subsides into a routine, or gives place to others, equally short-lived. Nor is this trend confined to sexual relationships. The young respond eagerly to the great variety of social intercourse; the older are apt to settle into grooves of social interaction, in which nothing is really interchanged and each pursues his own routine, which merely meshes with those of his companions. The members of such a group may go to bed with each other in rotation; or they may play bridge; or they may exchange predictable arguments in the pub. 'Or as,' in T. S. Eliot's words,

> '*when an underground train, in the tube, stops too long between stations*
> *And the conversation rises and slowly fades into silence*
> *And you see behind every face the mental emptiness deepen*
> *Leaving only the growing terror of nothing to think about. . . .*'

We know very well that social relations need not be like this—if only from what we can observe in the special condition of emergency. Not long ago the news-reels showed a fire in Oxford Street. Before the Brigade had even arrived, a magnificent piece of rescue work was organized and executed, with lightning speed and perfect efficiency, by an ordinary London crowd. For those brief moments, these individuals, strangers to each other and to those in danger, responded with alert awareness to their fellows and the situation. Everyone who remembers the last war can remember also the exceptional atmosphere of friendliness and mutual interest, which broke all usual social distinctions and reticences. Here is another potential which normally 'fusts in us unused', unless called into action by the otherwise undesirable stimulus of emergency.

These instances show that some, at least, of the capacities we have mentioned are, in most people, dormant rather than dead. And another relevant consideration is that of the early discoveries in the field of

hypnosis and suggestion (cf. p. 179)—that these processes could unmask in *adults* abilities long latent, and cause them to do things they would not themselves have believed possible (Milne Bramwell, 1903).

But the question must be stated, and if possible answered, as generally and comprehensively as possible. A useful distinction has been made between 'ageing' as a mere increase of years and 'senescence' as that decline of vitality some of whose aspects we have been considering (Medawar, 1952). The question can now be fairly put: must senescence accompany ageing, and both, as Minot put it, start at birth? Must it, at all events, be so rapid and far-reaching in the province of human behaviour? There are two ways of approaching the problem, a problem vital for human happiness. One is to examine the whole nature of 'vitality', 'fire', 'imaginative freedom' and 'creative performance' in the context of behaviour, and in the light of what we may expect of something like the human brain. The other is to search for clear-cut factors which can be shown to cause or accelerate behavioural senescence, and to show that these factors can, in principle and even in practice, be controlled— and controlled by the individual. The second of these approaches is the main theme of this book. The first is the subject of the section that follows. It is perhaps the most difficult section in the book to read—it was certainly the most difficult to write. But it colours so much of the remainder, and opens such hopeful and exciting prospects, that we could not dispense with it as a kind of preface to the study of human behaviour.

Progress and Specialization*

Much misunderstanding arises between scientists and other people on account of the usage of the term 'machine'. Scientists are accustomed to speak of the human brain, quite properly, as a machine. But they are using this word in a quite different way from other people. Nobody likes—again quite properly—to be thought of as something like a typewriter or a television set or an anti-aircraft predictor or even a computing device. Although the scientists are not in fact making such invidious comparisons, they often appear to be. In others, the usage is often rightly suspect. The philosopher Malebranche is said to have beaten his dog because it was 'only' a machine, and such language applied to fellow-

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* See Appendix 1: Cybernetics and the Darwinian Machine.

humans is often a sign of withdrawal from real relationship with other people, if not necessarily a precursor of beating them. An intense pre-occupation with man-made machines in the ordinary sense may be a way of escaping from social intercourse. But, as the ancients knew, and as Freud knew still better (cf. p. 112), though you expel Nature with a pitchfork, she will return. In this instance she returns in the common fantasy of the man-like robot—often with undertones or overtones of reappearing resentment, as in the murderous automata of Mary Shelley, Ambrose Bierce, Karel Capek and a host of later stories. Let us be clear at the outset that to build anything remotely like the human brain would require the whole resources of civilization for a very long time—a supremely pointless endeavour, since the result would be unlikely to surpass, or even equal, that of the oldest, cheapest and least specialized technique in history—the work of two ordinary human adults of opposite sex.

The term 'machine', in the scientific sense, is indispensably convenient for the sort of discussion on which we are now to embark; so let us be clear that it is a very wide and general term indeed. A machine is anything that *behaves*, that does things. It does not matter in the least what it is made of, and it matters no more whether it is as simple as a clockwork toy or as unimaginably complex as the brain of Shakespeare; and nobody is suggesting for a moment that the two have anything more in common than this exceedingly general property. We shall have to amplify what is meant by 'behaving'. Briefly, a machine is something into which messages are put (the *input*), and out of which come messages (the *output*) which take the form of some observable performance. The machine itself is simply an organized relationship between input and output. In the simplest instance, the performance may all be prede-termined in advance, and independent of input, as in the clockwork toy, but from now on we shall usually be considering the more important case of relations between input and output.

Machines do not work without a supply of energy or power. But we must carefully distinguish this from the messages making up the input. Your television set receives its power from the mains *via* a power-point; it receives its input from the transmitting station *via* its aerial* and the electromagnetic disturbances in between. (The output is what

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* Strictly speaking, the television set does receive energy from its aerial, but the input, in our sense, is a pattern or sequence of *fluctuations* in the electromagnetic wave energy collected by the aerial.

you see on the tube.) When we think of the flow of energy through something, we think of it in a quite different way, as an 'engine'; when we consider it as a machine, we are only interested in the relations between its input and output. In such a machine as the television set or the human brain, there is an obvious difference between power supply and input. The power supply must be *constant*—this is what power packs are for; but the input *varies*. If it did not, watching television would be somewhat monotonous. There is a very large number of possible patterns of disturbance the aerial could receive; each of these we can think of as a separate message, and the whole set of them as the set of messages available to the machine. There is a somewhat smaller but still very large number of different spatial patterns that could appear on the tube as the output messages. At a given moment, one of the set of input messages comes in, and one of the set of output messages appears on the tube. From moment to moment, input and output change. What goes on inside the machine is a complex process of coding the incoming messages into signals which can ultimately take the form of patterns on the screen. But the art of coding is to conceal art. If the job is done properly, there should always be a definite relation between input and output: any given input message should produce a corresponding one at the output. In the case of the television set, this relationship should be constant; there should be, in fact, a *fixed* relation between input and output.

Power and input can similarly be distinguished in the human brain, though here matters are a good deal more complicated. The power supply is provided by feeding and breathing, but some parts of the *input* may also take the form of complex patterned messages provided by food substances of special kinds, such as glutamic acid, lack of which causes specific upsets in human behaviour (e.g., quarrelling). For the most part, however, the input comes through our sense organs, while the output, (so far as the outside observer is concerned), expresses itself in the muscular activity patterns which produce all our words and deeds.

The input to a machine does not pour into it haphazard; it is concentrated at certain points, such as, in the case of the brain, the sensory nerves which enter it. Similarly the output emerges in a coherent way at certain points, such as, in the case of the brain, the motor nerves to muscles. The 'inside' of the machine, the machine itself, is a pattern of connexions between input and output. The complexity of the machine depends in a simple but rather dramatic way on the number of units, or parts, or components, of which the machine is made up. As the

number of units increases, the number of possible connexions increases very much more rapidly, subject to the sheer traffic problem of their interweaving network. A machine with two parts could have two connexions; one with three could have six; one with four could have twenty-four; one with five could have a hundred and twenty . . . one with ten thousand million (like our brain, p. 12) could have an unimaginably large number. The part of the human brain called the cerebral neocortex is peculiarly rich in interconnections between its component units, and is designed anatomically to reduce the traffic problem to a minimum. We may thus think of machines as being of greater or lesser *complexity*.

This complexity in turn determines the *variety* of the machine's behaviour. The more complex the machine, the more varied the inputs it can distinguish, and the more varied the distinct outputs it can generate, while preserving the relationship between the two. Complexity of organization and variety of behaviour are two aspects of the same thing. There are now methods of actually measuring complexity. When these methods are used to provide estimates, it is found that the simplest of living organisms, considered as machines, are astronomically more complex, and hence more variable in their behaviour, than the most ambitious man-made machines. A bacterial cell, for instance, is vastly more complex than a giant computing machine, but the human brain is so much more complex still, when in action, that nobody has yet been able to develop really convincing ways of estimating its effective complexity. We need hardly object to being called machines, for we are machines of a quite exceptional kind.

For one thing, we are what are called *purposive* machines; but this property we share with some man-made devices. When we design and operate a *non-purposive* machine, for any given output we have to put in an input of equivalent complexity of pattern. In more homely terms, we have to tell the machine exactly what to do. When we want a typewriter to type the word 'impenetrability', we have to press all twelve keys (those for 'e', 't' and 'i' twice each) in the right order. In many contexts where man-made machines are used, such an exasperatingly slavish response would be intolerably inefficient. If, for instance, we tried to use a non-purposive machine to regulate the temperature in a refrigerator, we should have to stand by the wretched thing all day, reading temperatures and making adjustments all the time; there would really be no point in having the machine at all. We have, therefore, for a long

time been employing purposive machines. With these in use, all we need supply is a *goal*, a set of instructions which we put in at the start. The machine then achieves the goal, however much its input varies after we have gone away. It can do this by means of a device which engineers call a feedback loop. This means simply that the performance of the output at some stage is *fed back* into the machine as a special kind of input. The machine now knows what it is doing (if we may use the expression without evoking nightmares of the Golem or Frankenstein's monster). At any moment, it can compare its actual output with its goal or instructions, and by computing this difference it can *correct* its output in accordance with the goal. This is called *corrective feedback*, and in man-made machines may take some very simple forms. For instance, a simple *negative* feedback loop, as we call it, may serve to ensure that a particular measurable output never rises above a certain predetermined level; any tendency of the output to rise further is made to cause a reduction in the machine's input, and hence bring the output back to the desired state. This is the principle of the governor which prevents the engine of a car from driving it above a certain speed. (It is from this word 'governor'—after a little etymological detour round the original Greek root—that the word 'cybernetics' is derived—the study of the sort of things discussed in this section.) But corrective feedback may be much more subtle and many-sided. The loop may run direct from the output, and/or after passage through the world outside the machine—the machine's *environment*. It can tell the machine what it is trying to do, or what it is actually doing, or both, and especially it can report the difference between the two.

A living organism is a purposive machine. It has a most intricate network of goals, but for the present we may simply consider the goal of *survival* in an environment. Survival means simply remaining a machine; for a dead animal does not behave, and is *not* a machine in any sense. The relations between input and output must now be meaningfully organized for the purpose of survival. The organism acts on its environment by means of its output—it can, for instance, radically change its environment by running from place to place. The pattern of events outside the organism is continually changing, and some of these changes would, if unopposed, set up disturbances in the organism which would lead, sooner or later, to its death. For every different environmental situation, the organism must act in a certain definite way, if it is to survive. If at any time it fails to give the right answer to a current environmental

riddle, it suffers the fate of the victims of the Sphinx, who killed all those unable to answer. Like a fencer in a match, for every environmental thrust, it must have the right behavioural parry. (These analogies can be quite properly applied; at the same time they remind us how readily examples occur to us which are connected with the particular activity of fighting. This is a much more complex and special concept, and confusions are liable to arise unless we keep the fact in mind.) It is easy to see that the organism must have at least as much variety in its behaviour as there is variety in the environment. If it has less variety than that which threatens it, it *must* sooner or later encounter a thrust to which it has no parry. The requisite variety of behaviour must be based on a corresponding degree of complexity in the organism, and we can think of complexity as a way of storing variety. But this complexity must naturally be systematic. A fencer may know just as many movements as his opponent, but if he executes them haphazard, with no relation to what his opponent is doing, he will soon be in a position to cry '*Touché!*' Such a touch may not be 'so deep as a well, nor so wide as a church-door; but 'tis enough, 'twill serve'.

It is clear enough from all this that the survival of an animal is a very different thing from the static, brute persistence of a rock. 'Our stability', wrote Robert Bridges, 'is but balance, and conduct lies In masterful administration of the unforeseen'. Now so far we have implicitly taken for granted that the relations between input and output are permanently fixed in the machine. Such a machine may in fact be called *automatic* (whether or not it has corrective feedback). The greater the complexity of these relations, the greater the variety of the machine's behaviour, and the wider range of environmental disturbances it can oppose. But suppose the input-output relations are *not* fixed, and can be adjusted by the machine itself in accordance with the success of its own previous performance? This is exactly what happens in what we may call an *evolutionary* machine.

An evolutionary machine is made up of a very large number of component units, richly interconnected, the relations between which are *not* predetermined. As various inputs impinge on the machine, the small units become linked together into larger transient combinations, which shift and merge in kaleidoscopic fashion, like political parties in the parliamentary assemblies of some modern countries. The question can therefore arise, which of these transient functional groupings will *survive* as larger single components, and this may depend on a process of *selection*.

The process is thus comparable with the natural selection of successful organisms and species in the grand procession of organic evolution, and we can apply to events in the individual brain all the principles observed on that more spacious stage.

The selection of groupings which are to survive may itself be determined by the success of the *output* performance each such combination makes possible. Here is a new kind of feedback, by which the organism can use its past experience to improve the whole *organization* of its behaviour. It may be called *informative* feedback. The process may be illustrated by the behaviour of a motorist, who, on a slippery road, gives the steering-wheel 'a succession of small, fast impulses, not enough to throw the car into a major skid, but quite enough to report . . . whether the car is in danger of skidding'; this information is used to predict the future range of deviations in the system made up of car and road, and the whole input-output organization of steering is adjusted accordingly (Wiener, 1948).

We may now consider an evolutionary machine in action. If the inputs from its environment remain for some time within a narrow range, those combinations of components which lead to successful outputs (that is, outputs which neutralize disturbance to the machine from the environment) will gradually become more and more rigid and regular, so that what are initially mere component groupings harden into virtually fixed parts. If this process reaches completion, the machine ceases to be evolutionary, and becomes automatic—that is, it becomes a machine with fixed input-output relations. The machine may now be said to have become wholly *specialized*. It now shares the fate of any automatic machine. That is, it can continue to survive in an environment with just as much variety as it now has available in its own performance, and any new, additional environmental change will destroy it. It is safe only within the magic circle of inputs which shaped its specialization—to which, as biologists say, it has become adapted or fitted.

As long as the machine remains evolutionary, it must continually increase its own complexity, and by the same token the variability of its behaviour. It is this wonderful property of change and development and continual self-enrichment that marks off the evolutionary machine from all others, so much so indeed that it begins to seem absurd to use the term 'machine' at all; for to most of us that word conveys above all a sense of the pre-determined, of the automatic. The living organism is an evolutionary machine for the duration of its life; but in many different

ways it moves steadily throughout that passage towards specialization and automatic status. We have seen that once such a machine has become fully specialized, its complexity no longer increases, but is from thenceforth fixed and unalterable. The longer it has remained evolutionary and the more varied its experience during that period, the more complex, and therefore efficient, it will now be. Thus one fully specialized machine may be more complex and efficient than another. We may illustrate this from organic evolution itself. A deer is very highly specialized for what biologists call a particular niche—that is, for a particular way of life, namely that of a fast-running vegetarian. So also were some of the small fast-running dinosaurs of the Mesozoic Era, more than a hundred million years ago. But the ancestral line of the deer, *before* so specializing, remained for a long period in a less specialized condition, where their complexity continued to increase—the precursors of the mammals, which appeared while the dinosaurs were established in all the niches of land life. The new specialization is hence better than the old one; the deer remains, the dinosaur has gone. The deer is said to have *progressed* further. Of all species, the supremely prolonged progress occurred on the road to our own, and we are still progressing.

What does this *progress* mean? Clearly, the continuance of evolutionary properties in the machine that exhibits it, and a tendency for the evolutionary capacity to increase rather than run down into specialization. Let us take an instance of progressive change, again from the story of organic evolution itself; it will serve to make more concrete much of what has been said. Some animals have little or no capacity for regulating their internal body temperature, which tends to follow closely that of the environment. Such animals must clearly stay in regions where there is a range of temperatures over a narrow band, within which living processes can go on. If there are severe climatic changes in *time* affecting wide areas, even this stay-at-home habit may not save its possessor from extinction. The facts are somewhat complicated, but the extinction of the giant prehistoric reptiles was at least partly due to deficiency in this respect. Some animals (such as the mammals) have developed a complex internal apparatus within their bodies for counteracting the influence of change in environmental temperature. Such animals are more independent of surrounding conditions. They can colonize a wide range of territory, they can be active at most times of day and year, and they can survive drastic global upheavals of climate. This is obviously achieved by increasing internal complexity. But the change makes possible more

than the advantages it originally conferred. With exact maintenance of a very narrow band of temperatures and other physical conditions in the neighbourhood of the brain, that organ becomes capable of increasingly subtle and delicate functions. Thus the progressive species becomes continually, by a beneficent cycle, more and more (to use a civic metaphor) a Freeman of the world. In short, there are two kinds of change in the evolutionary machine. A specializing change reduces the number of avenues still open, a progressive change multiplies them. It is like going into a maze on the one hand, and coming out of a maze on the other.

We thus come to the exciting conclusion that a machine—a human brain, say, or the human species—if it is evolutionary and as long as it remains progressive, will survive indefinitely, continually enriching its behaviour with new variability. This is indeed heady wine. Microcosm and macrocosm repeat the same theme. We are taught of an expanding and creative universe, and we can think of an expanding and creative mind. 'Creative' is a fair word to use, for creation is the word traditionally applied to the operation of organic evolution itself. Notice how closely survival and expansion are related. It is an old and gloomy fantasy that the prolongation of individual life, and the prolongation of that of our species, must alike lead to a narrowing circle of stagnant boredom.

> *The woods decay, the woods decay and fall . . .*
> *And after many a summer dies the swan.*
> *Me only cruel immortality*
> *Consumes.*

It is the fantasy of Tithonus, gifted with immortal life and immortal tedium. But the immortality of a real Tithonus would hinge on a continual heightening of awareness, an unending expansion of interests, of enjoyment, of imagination and creative action.

Principle is not the same as practice, and with these thoughts we have moved rather far from present-day reality. But we can now see the urgent practical need for inquiring: how is progress maintained in the evolutionary machine? There are two related answers. First, progress may be the consequence of a passage through environmental change which is never too severe to destroy the machine, but never too negligible to permit total specialization. The other answer lies in a special provision within the machine of a store or reservoir of variation, continually maintained, so that specialization is never possible: this is the trump up the evolutionary sleeve. Both these processes can actually be traced in

the evolution of successful animal species, and both can also be traced in the human brain and human behaviour, where we call them *exploration* and *imagination*. With these properties we shall be much concerned in the next chapter; and with the processes which hamper and limit them, we shall be concerned in much of the remainder of this book.

The ideas of specialization and progress can be well illustrated at the sociological level. A commercial organization is a complex evolutionary machine, designed (if it is a reputable firm and not a bucket-shop) to persist as such. It must therefore operate in terms both of the existing market situation, and also in terms of possible future changes in demand which may be beyond the control of its advertising department. If it is very well adapted to a particular market, it may do better than its competitors for a while, but its prolonged survival hinges on its capacity to sacrifice a little immediate gain in favour of flexibility in production or distribution, methods or materials. To survive for long, it must spend some of its resources on research, and the more fundamental the better. The sacrifice demanded may in fact be very slight, and a flexible firm is usually more efficient even within a specialized market. Such a firm is itself a unit in the larger framework of an industry, and in this larger framework the dangers of monopoly are widely proclaimed: they are those of loss of flexibility and starvation of research. These dangers may be seen as symptoms of a fundamental defect of human co-operation and social organization—the fact that human social interplay still needs the stimulus of emergency, such as is provided among competing firms. (cf. p. 154.) We need not regard this defect as ineradicable; but we shall turn to such problems in a later chapter.

From this strange world of the theory of machines, we can return at last to the senescence of the human individual. We can now be more precise about the content of the previous section. What we thought of as range and freedom of imagination is a fund of variability in the brain. The 'fire' and 'vitality' we spoke of is simply the overt indication of how much of an individual's brain remains evolutionary and progressive. Conversely, the processes of senescence correspond to a steady specialization. How variable is the behaviour of an adult will depend on how long, and in what varied circumstances, he continued to increase his variability. But sooner or later, at a higher or lower level and in greater or lesser degree, all of us become increasingly *automatic* in our thought, feeling and overt behaviour. To the extent that this is true, we have little right to repudiate our description as automata, as '*mere* machines'. An

individual who has become largely automatic may still have quite a large range of moods and performances; the point is that he can no longer *increase* his repertoire. A hectic oscillation between such a fixed set of moods may simulate real variability; but we need not confuse the two. This is the gloomy side of the picture; whether and how far we can still, individuals and species, escape from our automatisms and resume our evolutionary progress is a problem we shall have in mind throughout what follows.

A specialized automaton must seek and remain within an environment for which his automatisms are shaped. In social terms, he must find other automata with whose behaviour his own meshes. Thus arise pseudo-relationships, in which the behaviour of each party is prede-termined, and unaffected in any real sense by the behaviour of the other. In contrast, we can now see that a real relationship, sexual or more gener-ally social, can only obtain between two people whose behaviour is still evolutionary and progressive, for then each is genuinely *responding* to the other, changing and developing in relation to continual new stimu-lation. Such a relationship, at its best, becomes an exciting interchange within what has almost become one system, though a system within which each party is free and discrete. We can thus speak of relationships, no less than of individuals, in progressive and evolutionary or automatic terms. The importance of this has long been sensed by creative writers, who strive to make both their heroes and heroines and the relationships between them change and, as it is said, *develop*, even if only for the duration of a novel or play, and even if to a tragic or static end. The conception of *indefinite* development of this kind is still as little realized in literature as in life.

The Study of Human Behaviour

One thing must already be clear about human behaviour. What we are to search for is not a static code of rules, however elaborate or ingenious. The requisite for human liberation and happiness is that each individual should be able to progress, and become ever more versatile and adaptable in meeting every situation that may arise. The contrivance whereby pro-gress is introduced into our evolving minds is what we shall call the exploratory drive, and in each of us the activity of this drive must some-how be promoted. But what makes us human is our capacity for furthering

each other's explorations by a process of creative communication between us. Our inquiry will therefore have two closely related phases or departments: the study of individual behaviour, and that of the relations between individuals—the study of social relations, which broadens out into that of the great and complex aggregations of human societies and cultures. In both phases our central question will be: what factors place a limit on the activities of exploration and communication, and how can these factors be isolated and controlled?

The quest for these factors will take us over strange and diverse ground. Before we are through, we shall not only mingle with a number of 'ordinary' modern families, but seek the company of a host of strange figures in history and literature. But before any of these excursions, we must pry into cages and peer into tanks where perform a motley band of non-human animals. These animals appear especially in the two long chapters that follow this, though they bob up again here and there on later pages. Having opened a book on *Human Behaviour*, the reader may well blink at the presence of so many pigeons and monkeys and frogs. The explanation is natural enough. The behaviour of most other animals is incomparably simpler than our own, and they provide graphic and straightforward illustrations of many a mechanism important in ourselves; for many of our problems turn on out-dated relics in our behaviour of the long course of evolution to which our species has been subject, relics which we must seek to relegate to our past. But the most important of all aspects of our behaviour we do *not* share, to any appreciable degree, with any other species. If we are to control our own destiny, an opportunity unique to ourselves, we must understand these new properties to the full. For it is not the least curious quirk of our story that most of our troubles spring precisely from perversions of the great new specifically human capacities that, properly used, can set us on paths of undreamed-of progress. We have to begin our inquiry with that of Hamlet: 'What is a man?' And even to begin to answer this question, we have to notice what a man is not. We must not be misled by facile comparisons with the quite different world of the lower animal; and these facile comparisons are best avoided by a brief but searching glance into that world.

The inquiry will throw up a host of new questions, and a few provisional answers. For instance, we shall contend that our evolutionary progress as individuals is thwarted by an early, intense and enforced specialization to the limited environment of our own families; and this

will be one of the main themes of the book. But such answers as we provide are like all the answers of science—never to be taken as the last word, and valuable only if they set us asking new questions. Our main concern has been not theory but principles of observation; we have sought to set up landmarks and signposts which anyone may follow. For anyone has the means and the daily opportunity to study human behaviour, his own and others'. Writers on the behaviour of animals have pointed out that it needs no formal training to watch the behaviour of (say) birds, and have sought to show how each amateur observer can make a real contribution to the progress of that science. We have tried to do as much for the study of human behaviour. In this field, every-one is an amateur, and with good and practical reason. If we are to shape, and not to rough-hew, the ends of our evolution and the growth of our happiness, each and every one of us must actively explore. For all of us, individuals and species, to explore is to survive.

Intelligence, Instinct and Rationalization

> *... What is a man,*
> *If his chief good and market of his time*
> *Be but to sleep and feed? A beast, no more.*
> *Sure, he that made us with such large discourse,*
> *Looking before and after, gave us not*
> *That capability and godlike reason*
> *To fust in us unused.*
>
> Hamlet, Prince of Denmark.

INTELLIGENCE

Intelligence and its Measurement

To study human behaviour, we must begin by considering how it differs most markedly from that of all other species. Only then can we see how to foster this difference and develop it even further. The words quoted above take us to the heart of the matter. Can we define more precisely (and therefore more usefully) 'that capability' which, according to Hamlet, marks us off from all other animals? The term in use among scientists is 'intelligence', and we must start by taking a look at this concept.

As used in common speech (and by some scientists), the term 'intelligence', like that of 'machine', has a curiously forbidding flavour. 'Intelligence' is often regarded as either academic and unpractical, or cold and unfeeling, or both, whereas in fact it was intelligence that produced not only the *Principia* of Newton but also *Romeo and Juliet*. To function intelligently means in practice exactly the same thing as to enjoy life to the utmost—and in particular, as we shall see, there is a specially close

and positive relation between intelligence and sexual enjoyment. But powerful pathological factors, as we shall also see, hinder the application of our intelligence to social behaviour and to the observation of our own feelings. Hence the degradation of the idea of intelligence into something which, for want of a better word, we may call intellectualism. Throughout this book, we shall use the word 'intelligence' in its wider, more profound and more humanly significant sense. We can begin by considering the attempts made to isolate and measure this elusive but all-important quality.

The early attempts to measure intelligence (whether conceived as one or several variable properties), contributed valuable advances in method. In particular, they were prominent in the development of the method called *factor analysis*. How this is done is a matter for expert statisticians, but what it *does* is a matter of general interest and not difficult to understand in outline. Suppose you take a large number of people, and set them a large number (a 'battery') of tests, giving them marks or scores for their performance. The scores on each test will differ from subject to subject. How does this variation arise, and how is it distributed among the individual tests? One simple situation would arise if each of the tests were perfectly designed to measure one thing, and one thing only. Thus one test might measure *only* manual dexterity and nothing else, the subjects being blindfold, while another measured *only* visual acuity, the subjects giving their response to the test by some very simple manual operation, such as pressing or not pressing a button. If all this were strictly true, factor analysis of the scores would reveal two factors causing variation in score between performers—manual dexterity, whose variation was detectable only in the first test and did not affect the second, and visual acuity, whose variation was detectable only in the second test, and did not affect the first.

Such simple situations are in practice rare. More commonly, the performance of a group of subjects on any one test will be affected by several factors varying between them. For, on almost any conceivable type of test that may in practice be set us, we are liable to be using far more than one kind of ability. Suppose we want to test visual acuity in particular—that is, the capacity to discriminate between two lines increasingly close together: the higher your visual acuity, the nearer the lines can be before they blur into one. To take a grotesque example, suppose we try to test this capacity by asking the subjects to play the piano part of the Brahms D Minor piano concerto from scores in

increasingly small print. Unless we were very lucky in choosing our performers, we should form a poor opinion of human visual acuity. For, of course, performance on such a test would be influenced by a host of other factors varying between human individuals—such as manual dexterity, previous training as a pianist, physical size of the hands (it is doubtful if Mozart could have played this work), and even the capacity to play this particular work from memory. Nobody would be so silly as to set such a test as this for this purpose. But it is easy to see that there may be tests which require, for instance, both manual dexterity and visual acuity in varying proportions, so that one or the other factor may be more decisive for good performance, but both may play a part. Now factor analysis can tell us (at least in terms of a highly likely estimate), *how many* factors are contributing to the variation in performance of several subjects on a large battery of tests; and it can tell us how much each factor is contributing in each test—in other words, how *good* each test is at measuring each of the different factors. If the tests were designed well, deliberately or by hunch, we should then be able to describe in qualitative terms each of the factors isolated by the statistician. This is a powerful and valuable technique, and we owe much to the pioneers in the field of intelligence testing.

However, these pioneers failed signally to isolate a factor or factors of intelligence that had any general or plausible significance, or any adequate relation to the sort of know-how that the practical man of affairs rightly sees as intelligence in action. Some of the investigators were driven to regard intelligence (as one of them put it) as 'that which is measured by intelligence tests'. Their efforts culminated in the well-known Stanford-Binet Intelligence Quotient, or I.Q. ('quotient', because the supposed measure of intelligence is divided by the age of the subject). As is now known, this measure is virtually unaffected by cutting off most of the brain's oxygen supply for long periods (Halstead, 1947, p. 114), or by removal of both frontal lobes of the brain or removal of any other brain lobe on one side (ibid., p. 140; Hebb, 1942). In other words, on the I.Q. reckoning, an individual with about a quarter of his brain missing is as intelligent as ever! While the I.Q. test battery is not wholly unrelated to intelligence, and has some restricted practical uses, it is alarming to reflect that so primitive a method is still being widely used in educational and other contexts (Nisbet, 1956).

The Work of Halstead

The first successful approach to the problem was made by Halstead (1947), and its success was undoubtedly due to the fact that he started with biological and evolutionary ideas—in fact, as we can put it today, with the notion of how to measure performance of a progressive evolutionary machine. He applied a battery of tests to a wide range of subjects, including patients with brain injuries, and submitted his results independently to two experts in factor analysis, Holzinger and Thurstone. Both these experts, using their technique, came up with *four factors*, whose significance Halstead was able to explore in further extensive studies. The effects of brain operations showed that all these factors are closely related to that part of the brain known as the cerebral neocortex, which, as we have seen (p. 18), has all the properties required of a progressive evolutionary machine. Moreover, this structure is developed to any significant extent only in mammals, and progressively increases in size and complexity throughout the series of our primate relatives (monkeys and apes), reaching its culmination in ourselves, where it is the most striking anatomical feature which differentiates us from other animals. We are thus well on the track of that specifically human 'capability', though it now turns out to be of a four-fold nature.*

Halstead gave his factors brief and austere labels—the A, C, D and P factors. In deference to the limitations of most people's memories (including our own), we shall use more picturesque if less non-committal terms, and refer to the factors, respectively, as *Abstraction, Integration, Specific Expression* and the *Exploratory Drive*.

Abstraction, Integration and Specific Expression

We can begin with Abstraction. Tests which are to measure this effectively must *not* allow the subject, to any great extent, to make use of information obtained before the test, or, in later parts (sub-tests) of the test, of information obtained in the earlier ones. In every sub-test the subject is required to think again—each must be approached on its own merits.

One good test for abstraction took the form of presenting on a screen

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* See Appendix 2: Neurology and the Work of Halstead.

a series of patterns differing in size, shape, number, position, brightness and colour. The subject was first taught that for each presentation there was one correct key which he must press, out of four such keys. But the principle on which the right key was to be chosen was made very different in successive sub-tests. For instance, in one sub-test a succession of geometrical figures in a row might be presented, four at a time. The solution might now be to press the key corresponding in position on the row of keys to that on the screen of the one figure which was different in *shape*. The subject would not be told this, but there would be many presentations, and, each time, pressure on the right key would be made to sound a chime, while pressure of one of the wrong keys would simulate the sound of a 'raspberry' or 'Bronx cheer'. After a few presentations, a subject with good abstraction would be able to decide that he must choose his key as we have indicated—even if other factors were varying as well, for instance if the figures differed in size as well as shape.

But in another sub-test, the experience so gained would be of no avail (apart from the simple notion that one of four keys was to be pressed, which was in any case given as an explicit instruction). For now one large figure might be presented, and the new principle might be to press the first key if one-fourth of this figure were made up of solid and the rest of dotted lines, and the second key if one-half of the figure were in solid lines, and so on. So that in each sub-test (each consisting of many presentations) the problem was totally new. This group of sub-tests was called the 'Category Test'.

It is easy to see why the factor is called Abstraction, for the word is in ordinary usage. Every time, the subject abstracts some principle from a mass of variety. This enables him to determine the regular similarities and dissimilarities between situations, and thus to discriminate a large number of different situations. He *can*, in short, see the wood for the trees. 'How many red herrings will grow in a wood?' asked Squirrel Nutkin in the Beatrix Potter story. To the subject with high abstraction capacity, such unexpected apparitions will present no difficulty either.

Abstraction at this level is only a vastly more complex version of the mechanism which enables us to see a square or circular object as such, irrespective of how it is placed in relation to our point of vision (Lorenz, 1951); but vastly more complex it certainly is, even if it operates on the same principles (Wiener, 1948). It is also, as Professor Lorenz has reminded us in correspondence, exactly what we mean by the much-abused word 'intuition'. Far from there being, as we are sometimes told,

any sort of contrast or split between intuition and intelligence, the former turns out to be precisely one of the factors making up the latter. Intuition means, etymologically, to 'see into' a situation, and this is merely another way of putting the same thing.

We all use this faculty constantly in ordinary life, though, as will be clear later, we could use it a great deal more. A competent interviewer, for instance, must have a considerable capacity for abstraction. He has to pick out from the detailed behaviour of candidates the factors that concern him, which will determine their success in a particular course or job, brushing aside all other similarities and differences. It is also to the exercise of abstraction that the writer of detective stories appeals, and his (or her!) art lies in the adroit but integritous scattering of red herrings. It is also easy to see that abstraction has everything in common with the elaborate technique of factor analysis (which we discussed at length for this very reason). Like Molière's Monsieur Jourdain, who found he had been speaking prose all his life, most of us may discover with surprise that we spend much of our time doing factor analysis in our heads.

The power of abstraction for behaviour lies in the fact that it permits discrimination of a very large number of situations—in principle, at full efficiency, of every possible situation that may arise. This is clearly one necessary condition for introducing great and meaningful variety into behaviour—ideally, as much variety as the environment presents to be encountered. By contrast, *any* rule of thumb is bound to break down sooner or later. Some such rules may be better than others, but sooner or later there will be an exception, and therefore a mistake. Wise organizations do not select candidates on the basis of any fixed criteria, preferring to use interviewers with excellent 'intuitive' qualities. Nor is this only a matter of interest to professionals; we are all of us amateur interviewers every day, and it is by means of abstraction that we respond rationally to the changing moods of varying human individuals with whom we come in contact. But in life outside the laboratory, we do not use one factor at a time, and we must now come to the second, that of *Integration*.

To get a first grip on this concept of integration, let us take another look at Halstead's Category Test (p. 32), which in fact measures both abstraction and integration. Whereas the intact subject, in dealing with this test, 'threads his way through the various items, familiar and unfamiliar alike, grouping them readily into appropriate categories, patients with

certain types of brain injury tend to adopt *a priori* . . . attitudes toward the items and especially towards items with unfamiliar content'. They begin with preconceived ideas about the principle they are to adopt, and persist in maintaining these in the face of repeated errors. After one error, the intact subject usually grasps the principle and then applies it correctly, whereas the brain-operated patient may persist in his wrong-headed view for twenty or thirty errors, or until he is helped by the experimenter. For instance, one sub-test consists of presentation of parts of a square divided into four quadrants, each containing a Roman number, as follows:

I   II

IV   III

In each presentation, a different quadrant is missing, and the subject is supposed to discover that he must press a key numbered correspondingly to the missing quadrant. 'After failure to grasp the principle involved, the brain-injured individual commonly reacts by stating that the "parts should be numbered this way," i.e.,

I   II

III   IV

He is confused by old habits of left-right, left-right sequences such as he has encountered in reading the printed page.' He will not, or cannot, correct a rule which is not applicable to the problem of the moment. That he *blames* his environment for this defect is a matter of great interest, as we shall see later.

   What is it that the intact subject can do in this test, while the brain-operate cannot? Obviously he can realize that he has made a mistake. How does he do this? By noting that he has adopted a principle previously found to work, by noting that this principle no longer works, and by correcting it accordingly. He has to say to himself, in effect: 'I was wrong in supposing that letters are always presented to me in this particular sequence; the rule works for most printed books, but I must admit of exceptions'. The modification might after all have arisen outside the laboratory in a more realistic way, for instance through an encounter with oriental scripts. The factor of integration permits *new data to be compared with old*, and thus makes it possible to *qualify a generalization*. 'Bethink ye', said Cromwell to the Scottish Presbyterians, 'bethink ye, in the bowels of Christ, that ye may be mistaken!' Had they been

equipped with a shred of the integration factor, his appeal might have been successful. Integration is the organized but flexible growth of the individual's experience; a growth like that of 'poetry', which, as T. S. Eliot once pointed out, changes its whole nature every time a new poem is written. It hinges on a complete availability of all data, old and new, for comparison with each other and rearrangement in ever more realistic groupings. It is already clear that intelligence is a progressive evolutionary mechanism *par excellence*. For we saw (p. 20) that as long as all the parts of an evolutionary machine remain connected, the functional groupings into which they tend to assemble can be constantly rearranged, while, once these groupings begin to harden into fixed parts, specialization occurs and with it the end of increase in variability of behaviour. We thus arrive at a momentous conclusion, for which we shall provide more direct evidence later. Flexibility of behaviour, the capacity to correct mistaken learning (*unlearning*, in short), is achieved by free communication within the brain, the free availability of any fact or idea for recall and comparison with others. Intelligence, as Halstead says, is the opposite of learning: indeed intelligence, and specifically integration, is the capacity to unlearn.

A high level of integration is thus exactly what we mean by an open mind—indeed the phrase is peculiarly appropriate, implying as it does both receptiveness to new ideas and an open system of communications within. We may also notice the infallible sign of a high level of integration —a pronounced *sense of humour*. For a sense of humour, as has often been said, is a sense of the incongruous. It requires a capacity to put two ideas in juxtaposition—especially two of one's own ideas, or one's own preaching and one's own practice—and see how absurdly they clash. The sense of humour is a sort of feedback report on the state of integration of our experience, or that of our society. Primed with this indispensable report, we can proceed, in the words of Dr Johnson, to clear our minds of cant. A keen sense of humour is vital for the process of psychotherapy.

The third factor, *specific expression*, needs less comment. Abstraction and integration are general concepts, but intelligence in practice always entails the use of some specific skill or executive ability. It may be expressed in painting a picture or composing music, in working with wood or metal, in the green thumb that makes plants grow or the greasy thumb that makes machines go, in preparing a sauce or cutting human hair. Specific expression thus implies a whole galaxy of different skills, at least one of which is needed in any behavioural context. If high levels of

abstraction and integration are attributes of genius, specific expression in similarly high degree corresponds to what we commonly call special flair or talent. It is a main point of Halstead's work that the different intelligence factors can vary between people independently—perhaps because they may be differentially blocked by pathological disturbance. So we need not be surprised to find talent without genius (as in minor poets), or even the converse: Ernest Newman once wrote of Berlioz that he combined a considerable genius with a very moderate talent for music.★

Social behaviour is of central importance in the life of man, and this entails the importance in the present context of techniques of communication, above all those concerned with the spoken and written word. It is with speech that we often have to do in treating of specific expression, and this is reflected in the considerable proportion of the human cerebral neocortex devoted to both the input and output aspects of verbal communication. The effectiveness of abstraction and integration is a function of the evolutionary properties of the cortex as a whole, or large parts of it. But specific expression involves a whole set of specific abilities. Not surprisingly, therefore, the various types of specific expression are more spatially restricted to localized regions, so that what are called focal (roughly = local) brain injuries can affect them selectively. This has given rise to an elaborate clinical classification of defects on both sensory and motor sides, such as the agnosias, aphasias and apraxias. Some of these defects are bizarre. For instance, in alexia the injured person may be able to recognize spoken words perfectly, but has lost the ability to read.

Exploration and Imagination

There remains a fourth, general factor, without which both abstraction and integration would be stultified. This we have called the *exploratory drive*, and it will recur as a centrally important factor throughout our inquiry.

The exploratory drive is the mechanism whereby variation is introduced into our behaviour. It thus keeps the brain progressive, and preserves it from degradation into automatic function. It breaks up

★ The illustration is useful, but is not intended to belittle this brilliant composer. The critic, an admirer of Berlioz, was making a relative judgment by the highest possible standard— the musical talent of Mozart.

assemblies of ideas before they harden, and rearranges them continually into new patterns, so that behaviour can become ever more varied and effective. It prevents ready-made reactions to a difficult new situation (such as those of the patients discussed on p. 34), until the characteristics of this situation can be explored, analysed by abstraction, and collated with previous experience by integration. The upshot of various courses of action in the new situation can then be predicted, and the most hopeful one freely chosen. For by freedom we mean precisely the capacity to choose between a wide variety of courses.

The exploratory drive is thus equivalent to tolerance of the stress involved in postponing a course of action which seems likely, on the basis of a too hasty inference from past experience, to promise some immediate gratification of a need or wish. To explore is to *tolerate uncertainty*. A variety of circumstances combine to make us, in Meredith's words, 'hot for certainties', and we must be content, unlike him, with a 'dusty answer' for the time being if we are to explore a new situation and freely choose how to deal with it. The gift that makes the supreme explorer, the scientist or artist, is not the capacity to frame a hypothesis or a mode of expression, but the capacity resolutely to scrap them and start again—not, of course, really from scratch, for a good scientific hypothesis is always integrated into its successor as a special case, and an artist makes fresh use of the devices he has discarded as such. And we all do this every time we see that we were partly right about something, and partly wrong. Our tolerance of uncertainty is intimately connected with our expectation of finding a better solution, and a faith in our own exploratory powers is a most important aspect of the exploratory drive. To this thought we shall return.

The drive expresses itself in two different but harmoniously related ways. First, we can explore by active overt behaviour in our external environment, and we can call this exploration proper. This may take the form of trial, or experiment, and observation of environmental events, as, in a very simple way, the motorist was doing whom we considered earlier (p. 21). It means observing our own behaviour and that of others, and noticing what goes wrong. It may also mean making all sorts of elaborate experiments and investigations of non-human events. One aspect of exploration is of special interest—that of exploring what *others* have observed. The child begins by asking questions of its (in *some* respects) better-informed parents. Later the child begins to read and thus explore the vast resources of recorded human knowledge. Thi'

sort of exploration is indispensable, but requires two kinds of checks. First, information obtained from others must be tested against our own individual experience. Second, some estimate must be formed of both the knowledge and the truthfulness of our informants.

The second mode of action of the drive is to conduct trial and error, not overtly with things, but in our heads with ideas. We should not have proceeded far without this precious gift of setting up within our brains a sort of models of environmental factors, and kicking them around in thought. This kind of trial and error with imaginary models is sometimes called insight, and was first discussed by Craik (1943). Exploration in this sense may be called the exercise of our *imagination*, and is a key component of intelligence—far from being, as sometimes represented, in some way separate from it. The internal models must be wrought out of intricate patterns of nervous activity, which can be made to act and interact (cf. McCulloch, 1951; Young, 1951a; Eccles, 1953).

The three general intelligence factors form an intimately linked system in practice. In setting up our internal models, abstraction is important, and in permitting their free interplay integration is vital. The exploratory drive provides a ceaseless influx of new variability, which is filtered and organized into meaningful patterns by the other factors. Disorganized variation is presented to a filter, which brings order out of chaos. The entry of variation should be accurately adjusted to the amount the filter can handle, or more exactly the rate at which the filtering process works. We all know the feelings of staleness and lack of inspiration on the one hand, and on the other the sensation of being swamped by the influx of new impressions, ideas and experiences—variation entering too slowly, or too fast.

A properly functioning exploratory drive should permit the entry of variation at just the right rate, whether we are concerned with artistic or scientific creation, or technological progress, or everyday social behaviour. The greatest artists and scientists, such as Shakespeare and Darwin, are conspicuous in this respect, at least at the height of their powers. Their imagination seems completely unfettered, but their output never lacks coherence. The slightly less great are apt to show defect in one direction or another. The imagination of Sophocles was a little more restricted; the clarity and organization of the output is sometimes a little blurred in Shelley. As we descend the scale, we can find more glaring examples of the two kinds of defect, as in the *minor* poets of classical and romantic schools (variation entering too slowly in the

one case, too fast in the other). The chaotic result of too rapid entry is often observed in the first experiments of painters, writers or composers who are opening up a new medium—as in some of the work of James Joyce. Virulent hatred is shown by some people when such quite proper experiments are put on show (cf. Sitwell, 1949). This is a special form of intolerance of uncertainty or chaos; such a response is like that of the patients who told Halstead his patterns *should* be arranged in a different way, the way they were used to (p. 34). At the other extreme, when a medium has been well and truly explored, the work of the least adventurous spirits lacks the least vestige of unexpected variety. As Pope put it,

> *Where'er you find 'the cooling western breeze',*
> *In the next line, it 'whispers through the trees':*
> *If crystal streams 'with pleasing murmurs creep',*
> *The reader's threatened (not in vain) with 'sleep'.*

All these diverse situations have their counterpart in everyday behaviour.

Finally, we must notice one last key aspect of human intelligence. It no longer involves, as does the behaviour of lower animals to a very large extent, the adjustment of our behaviour to a finally fixed environment, but the moulding of the environment itself to give us greater scope for freedom in choosing activities. We have already, to a surprisingly large extent, changed the face of one planet.

We can now sum up the properties of intelligence, as a progressive evolutionary mechanism. The key properties are those of *free information flow* (integration), *flexibility*, *versatility* and *freedom of choice*. We have now to consider, in contrast, a system characterized by exactly the opposite qualities, namely *isolation*, *rigidity*, *stereotypy* and *compulsiveness*. (Just as freedom means the availability of a wide variety of courses to choose from, so compulsiveness means restriction, in any one situation, to one course of action.) We shall be considering an evolutionary machine indeed, but one which is partly automatic from the outset, and which tends to become rapidly more so as it develops. In place of the progressive mechanism of exploration, this other system deploys a mode of specialization which is sometimes called *conditioning*, and which acts continually to restrict freedom of action. The system as a whole may be called the *instinct* system. It is prominent in most lower animals as virtually the only means of behavioural organization, and to these we shall now turn.*

* See Appendix 3: Man and the Lower Vertebrates.

INSTINCT

'A Frog he would a-Wooing Go'

Before we survey the instinct system as a whole, we may as well have before us a concrete illustration, and for this purpose we shall have a look at some of the circumstances under which frogs a-wooing go. The example will show us, from another perspective, some of the great advantages of intelligence over instinct.

The wooing of frogs and toads is a simple if rather curious business. In these animals fertilization is external. That is, males release sperm and females unfertilized eggs into the water where they breed. But the juxtaposition of the two is not left to chance and water currents. During mating, the male clasps the female with his forearms round the waist or under the arm-pits. The actual position varies in different species, and there is an elaborate mechanism for ensuring the correct clasp in any one species (Russell, in press, *b*). *Fig,* 1 shows the normal position in the clawed frog, with which we shall be chiefly concerned. The male remains clasping the female for many hours. When she lays her eggs into the water—a process itself taking a long time—both partners make special movements to bring their reproductive apertures close together, and the male pours out sperm over the eggs as they appear. It is a nice smooth assembly-line procedure.

Most frogs and toads live wholly or partly on land for most of the year, and assemble together at the breeding season in a pond or creek, for their offspring (in most cases) emerge from the eggs as water living tadpoles, and the eggs must therefore be laid in water. The breeding season is often short, and each fertilization will evidently take a long time.* Mating is the more urgent in these species because they have no parental behaviour at all (some will eat their own eggs if they come across them later). So if a given male is to have more offspring than others he must '(*a*) miss no chances and (*b*) lose no time' (Russell, 1952). The laying of eggs by a female is preceded by the process of ovulation, the release of eggs from her ovary. From here they pass to a duct leading to the reproductive aperture, and some hours later they actually emerge. In the clawed frog they are wafted to the duct and down it by little hair-like cell processes of the cells lining the body cavity and the duct; in other species the last stage of their journey is assisted by muscular action. At

* See Appendix 4: The Breeding Season in Frogs and Toads.
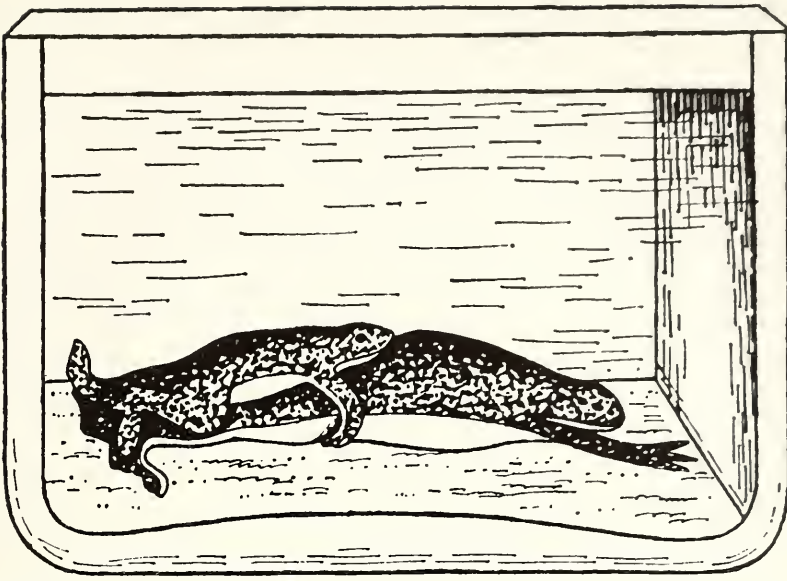
FIGURE I—CLASPING IN CLAWED FROGS (From Russell, 1954, Fig. I)
A male clawed frog clasping a female in the normal position for this species. The picture (from a photograph) also shows the relative size of the type of aquarium used in the observations mentioned in the text.

the beginning of the breeding season, some females are ovulating, others not yet. A male must waste no time clasping a female which is not ovulating, and hence will not lay eggs. He must not, however, pass by a female which is ovulating, for he would then miss a good bet.

Now it is precisely those mechanisms which cause their possessor to contribute most offspring to the next generation that are evolved in any species. In male frogs and toads, a simple two-stage behaviour pattern has been evolved to meet these requirements of missing no chances and losing no time. As a first stage, the male *clasps any* object with certain very simple stimulus properties—an unselective procedure, which even in nature sometimes leads to unfortunate indiscretions, such as clasping the head of a pike. More usually, the male encounters only three kinds of object with the necessary properties, namely ovulating females, non-ovulating females, and other males. He will clasp *any* of these he encounters, and is thus certain of missing no chance to fertilize. Non-ovulating females and other males, when clasped in this way, provide signals which cause the clasping male to *unclasp*. The signals vary between species and usually between clasped males and non-ovulating females: often they take the form of special actions by the

41

animal clasped. An ovulating female does *not* give these repulsive signals. Such a mechanism, whereby the behaviour of a female changes when she is ovulating, is commonly known as 'oestrus' (from the Greek word for a gad-fly—an allusion to the excited behaviour of cows attacked by this insect). An ovulating, or oestrous female, may be described as 'hot'; a non-ovulating female as 'cold'. The male accordingly knows when he is on to a good thing. He clasps all kinds of other frogs, but unclasps again from those which will provide no eggs to fertilize. He quite literally obeys the injunction of the Apostle to 'prove all things; hold fast to that which is good'.

The two acts of clasping and unclasping are simple and standardized. *Fig.* 1 (p. 41) shows the posture of the clasping male clawed frog. His arms are firmly bent or flexed round the waist of the female, largely by the action of a single deep muscle on each side, whose contraction pulls the forearm towards the breast. At the same time, as the figure shows, the snout is lowered, so as to press firmly into the female's back; the two components of the posture afford a firm grip. Unclasping is just the mirror image of this—the arms are spread apart, and the snout raised, thus releasing the female.

The simplicity of this two-stage behaviour sequence gave one of us the opportunity to prove beyond cavil some conjectures occasioned by a great deal of more complicated behaviour in more complicated animals (Russell, 1952, 1954, in press *a*, *b*; Russell and Russell, 1957). The species used was the South African clawed frog, so called because it has little claws on three toes of each foot, with which it can rake its prey and also, from time to time, tear off the dead outer layers of its own skin (this is the species shown in *Fig.* 1). By means of suitable laboratory conditions, it is possible to keep the females of this species in such a state that they are only ovulating and 'hot' when injected with a suitable dose of a (mammalian) sex hormone (and in fact this is the basis for the most efficient of all procedures for human pregnancy diagnosis, the Hogben test, for healthy women excrete in their urine specially large amounts of this hormone for a short period a few weeks after conception, and pregnancy of a woman can be inferred if a certain amount of her urine, after chemical treatment, makes a female clawed frog lay eggs). When not injected (or injected with a control solution with no hormone in it), the female frogs are non-ovulating and 'cold'—that is, they are ready to give repulsive signals when clasped by a male. The signal in this species is a noise which can best be rendered phonetically as 'Tut!

Tut!' The hot female is silent when clasped; a clasped male usually makes a rasping noise, like that of a very small saw.

A male can thus be placed in an aquarium with a single female, hot or cold as required by the experiment, or with another male. The male (if himself hormonally stimulated) will after a time clasp any partner provided. (If two males are together, they may, as it were, take it in turns.) But if the partner clasped is a male or a non-ovulating female, the clasping animal soon unclasps.

We are now in a position to see the essential nature of a fully instinctive mechanism. Being automatic, and specialized for a particular environment, it *looks* reasonable enough in that environment, where on the whole it works. But if we put the animal with such a mechanism in a quite different environment, the totally automatic nature of the behaviour is unmasked, for it cannot be adjusted to new conditions. This is the crucial test for a specialization, which shows that it is not reversible. After unclasping, the male swims away from his disappointing partner. In nature, this will generally ensure that he does not repeat his mistake with the same partner, for he is much more likely to encounter other animals. But in the laboratory experiments, the male is confined for several hours in a small aquarium (*Fig.* 1, p. 41) with the same partner. In these conditions, the clasping animal, after unclasping from a cold female or a male, pauses for a while and then renews his clasp. Foiled again! He unclasps once more, and later clasps again, and so on for many spells of clasping separated by intervals. There is no indication that he ever comprehends the real nature of his situation, for he continues unflaggingly to repeat these utterly useless measures. The length of the spells of clasping (a measure of his readiness to unclasp and give up the attempt) does not fall over a period of up to twelve hours (the longest continuous observations made)—at the end of such observations the male is trying as hard as ever. Moreover, eight repeatedly hormonally stimulated males were exposed eleven times, over a period of sixty-four days, for three hours at a time to non-ovulating females. Eight other males were exposed on the same occasions, but in some of these periods they were 'rewarded' for their endeavours with ovulating females, which permitted them to fertilize eggs. There was no difference between the two groups of males and no tendency in either group to abandon their attempts. At the end, the total amount of clasping and the length of the clasping spells were as long as ever. The males could never learn to take 'Tut! Tut!' for an answer.

There is an obvious family resemblance between this behaviour and that of Halstead's brain-operated patients (p. 34), who repeated their errors twenty or thirty times or until he intervened. It was inferred (p. 35) that this rigidity, or irreversibility, could be interpreted as a failure of integration. That is, the new experience of the patterns on Halstead's screen could not be related to the older experience of learning to read—there was some kind of *isolation* between two mechanisms. We can make similar conjectures about the behaviour of many animals. The interest of the clawed-frog study lies in the fact that it was possible here to demonstrate this relationship in experiment. We suppose that the rigidity of the male's behaviour is related to the absolutely automatic two-stage nature of his mating pattern, the two stages being perfectly separate and without any intercommunication. This could in fact be shown to be true. It was fortunately possible to measure the two acts of clasping and unclasping *separately* in the same experiment, and thus to examine the effect on the activity of both clasping and unclasping mechanisms of several different factors under the experimenter's control. This sort of investigation can be carried out with complete precision, by means of a statistical technique known as the analysis of variance. In factor analysis (p. 30) we have a mass of results showing much variation, and we use the technique to find out how many factors are at work. In variance analysis we deliberately vary several conditions together, and the statistical technique enables us to find out whether each of these *is* a governing factor for the events we are measuring. In this way, it could be shown that some conditions affected the clasping but not the unclasping mechanism, while others affected the unclasping but not the clasping mechanism.

Thus clasping was very much influenced by the dosage of sex hormone injected into the male—clasping activity rose steadily with increasing dose of hormone, as shown in *Fig.* 2. On the other hand, the variation in unclasping activity was not affected at all by hormone dose. Thus the first stage of the mating pattern is closely dependent on hormonal stimulation, while the second stage is quite independent of this. Just the reverse was found for differences between the animals clasped. These differences profoundly affected unclasping activity. Some cold females were unclasped more rapidly than others, and other males were unclasped most rapidly of all. (This last point makes sense in terms of the evolution of the behaviour, for a non-ovulating female *might* begin to ovulate while being clasped, while other males are clearly a hopeless proposition—they will

Clasping
Activity
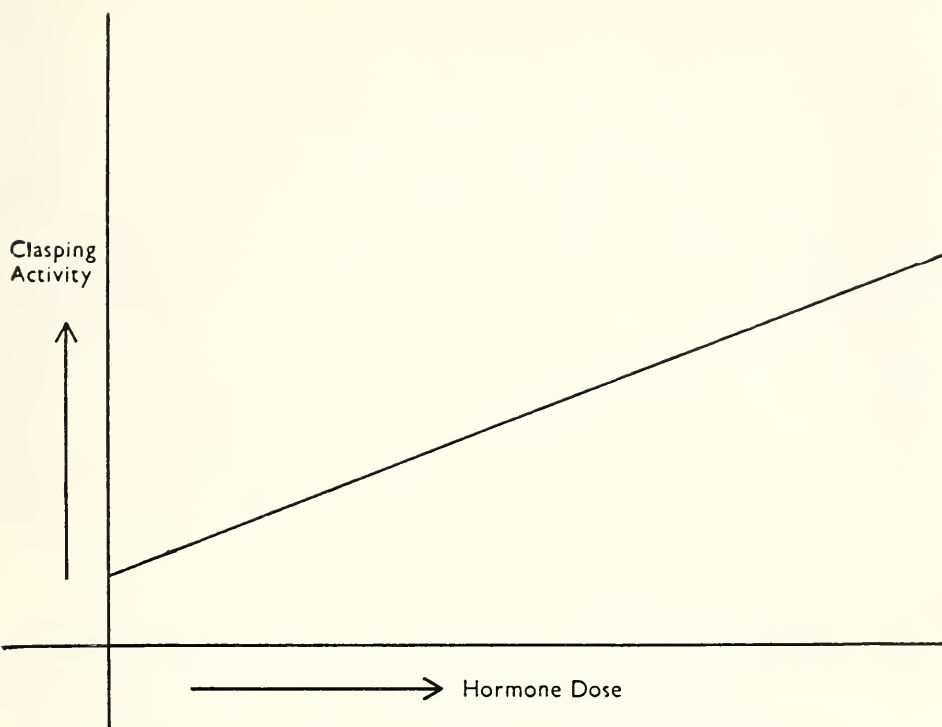
Hormone Dose

**FIGURE 2—CLASPING ACTIVITY IN CLAWED FROG MALES
AND THE DOSE OF A SEX HORMONE**
(After Russell, 1952, Fig. 25; simplified, but to scale)
The way in which clasping activity in male clawed frogs rises with increase in the dose
of a sex hormone administered to them. It is clear that the activity is greater the
higher the dose of hormone. Even when no hormone is administered, the frogs show
a *certain amount* of clasping activity in the conditions of the experiments, probably
because they are producing a certain amount of the hormone in their own bodies:
this level of activity may be called the 'resting level'. A very small quantity of admini-
stered hormone will cause a measurable increase in activity over this resting level.
The point where the graph meets the ordinate (vertical line) corresponds to this
resting level, which was measured in the same frogs. The effect of still smaller doses of
administered hormone cannot be detected, so the graph is not continued to the left
of the ordinate.

certainly never lay eggs.) But clasping activity was not affected at all by
these differences. Thus the first stage is quite independent of the nature
or state of the partner, while the second stage is much affected by this:
as we have already seen in general terms, the first stage is non-selective,
and the second stage depends upon the behaviour of the animal clasped.

It was thus clearly shown that factors affecting one of the two mech-
anisms had no influence at all on the other, and vice versa. (This quadruple

result was obtained twice in experiments performed some months apart, which agreed perfectly.) It follows that some kinds of input (e.g., hormones in the blood bathing the brain) are available only to one mechanism, and some (e.g., the sight or feel of the partner) are available only to the other (cf. Russell *et al.*, 1954). In an ideally functioning intelligence system, integration ensures that any input can be compared and related to any other. In the supremely instinctive system we have discussed, the inputs collected in each of the two mechanisms are isolated from comparison. Otherwise it could not happen that a factor influencing one act could fail to have any effect on the other. The two mechanisms interact as whole blocks, competing for control of the motor system in accordance with certain simple rules. (The rules in this instance, which we need not consider here, were in fact inferred from part of the experimental results and found to work perfectly when applied to the remainder. They have since been found to work in other species—Forselius, 1957.) The comparison is crudely visualized in the diagram of *Fig.* 3.

We can now put the same result in quite justifiable but more picturesque language. A mating male frog in its two-stage performance is in two different *moods*. One of these moods is dominated by the impulse to clasp, the other by the impulse to unclasp. The frog switches from one mood to another as the balance shifts between the two competing mechanisms. The two moods are so separate that there is no communication between them whatever. It is impossible to think of such an animal as having a single personality. Rather, he is split into several mechanisms, and each resulting mood is as separate as the moods of two different people. It is exactly as if there were two different frogs in one skin, quite separately motivated and competing with each other for control of motor activity. When one of these 'frogs' is in control, the other might as well not exist. It is now clear why the males are so incorrigible, so incapable of abandoning their unsuccessful attempts at mating (p. 43). Every time the male tries again, he is in a clasping mood, and literally cannot remember the repulse he has sustained a few minutes or even seconds earlier—for that happened when he was in an unclasping mood, and between the two moods there is no communication.

This sort of splitting of moods is what we call, in ourselves, *dissociation*. In some striking clinical cases, there has occurred what is called hysterical split personality. Patients of this kind swing in time between two or more quite different personalities, in each of which they can recall nothing whatever of their experiences in one of the other roles. But we do not

A

B
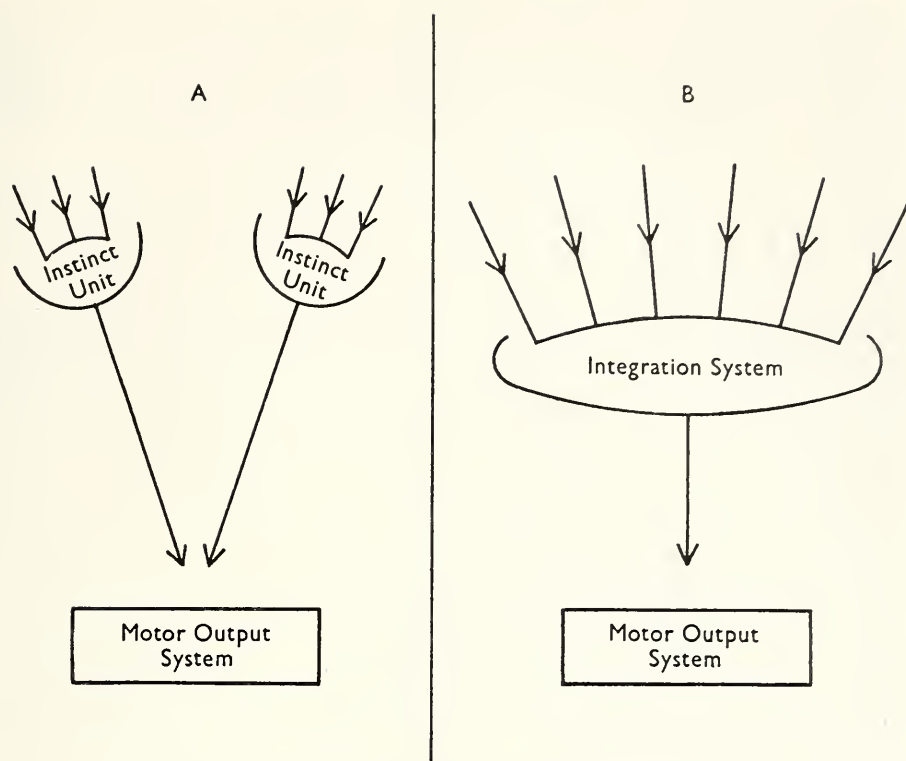
FIGURE 3—ISOLATION AND INTEGRATION
A. In instinctive function there are a number of isolated control units (two are shown here, as in the clawed frog example). Some inputs reach one of these units; other inputs reach the other. There is no comparison between these two sets of inputs, and the two units compete for effects on the motor output system.
B. In intelligent function, all inputs can be compared in one unified mechanism of integration, which then determines motor output.

require such dramatic examples to see what dissociation means for us. Every time we mislay an object, for instance, we are the victims of dissociation. If there were perfect communication between our several moods, we could not mislay anything. Such accidents arise because when we put the object away we were in one mood, while when we discover the loss we are in another, and we cannot recall what happened, or what we did, in the earlier mood. We are then in the position of the male clawed frog, who cannot remember that he was forced to unclasp a few seconds ago. We have, of course, an advantage, for we know something is wrong and can take steps to re-open communications. We can often recover a mislaid object by getting back somehow into the mood that occupied us when we put the object away. But we shall see that this

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way out is not always so easily available to us. Let it suffice at this stage to conclude from the frog study that rigidity in behaviour is the price paid for isolation between mechanisms, and hence dissociation between moods.

The Instinct System

For ensuring the survival of both individuals and species the intelligence system is supremely efficient, for all incoming information can be collated, and all overt behaviour designed, for effective pursuit of these goals. Intelligence is absent or nearly absent in non-human animals.* Yet obviously an astronomically large number of species besides ourselves are still in existence, and many of their members live long enough to breed. In many of these species, notably birds and bony fishes, behaviour, while often as automatic, is much more complex than that we have described in the clawed frogs. We must therefore see what alternative system has been evolved, vastly less efficient than intelligence, but adequate within special environmental niches (p. 22). This alternative apparatus we call the *instinct system*, some of whose properties have already appeared in the last section. The instinct system is, in effect, a set of fixed rules for conduct which to a greater or lesser extent restrict the variability of behaviour, though they are roughly related to the normal environmental situations encountered by each species. These rules may extend to the precise specification of movements, as well as of the circumstances in which they are to be executed. Such a code of rules is usually, in outline, common to all members of a given species, and the codes of different species are different. The code of each species must therefore be transmitted from one generation to another. This can be done in several ways.

The instructions for making new organisms of a given species are handed down by the process we call hereditary transmission. Owing to the remarkable properties of certain chemical substances, these instructions can be coded into molecular patterns in the microscopic structures we call chromosomes (cf. Kalmus, 1950). A set of these is usually contributed to the embryo by each parent, *via* the unfertilized egg and sperm which unite to form a fertile egg. The grown organism, the finished product, is a composite result of the interaction of these instructions with

* See Appendix 3.

the environmental conditions during development. The chromosomes therefore have to assume certain environmental conditions, and much of vertebrate evolution has turned on ensuring constancy and reliability in the environment of the young organism—for instance, in mammals, by retaining it for a long period within the body of the mother. Where behaviour is concerned, a special problem arises. Great as is the amount of information the chromosomes can carry, it is very much less than the amount that can be stored in the vertebrate brain. It is impossible for the chromosomal message to cover all contingencies. Now suppose we are sending a telegram to a friend which is not long enough to contain detailed instructions. If we know the recipient is likely to have certain experiences fairly soon from which his subsequent conduct can be guided, we can simply wire him the principles on which he is to derive a system of rules from his next few experiences (cf. Shannon and Weaver, 1949). It is much the same in the case we are considering. A given lower animal species occupies a restricted niche, where similar situations are liable to recur over long periods relative to a single generation. Relying on the environmental regularity which ensures that the most useful rules will be learned, the chromosomes can save precious signals by transmitting a general instruction to acquire a set of rules more or less rapidly and irreversibly on the basis of a few experiences, which will probably be shared in common by nearly all members of the species concerned. The principles so transmitted are in the first instance those of pleasure and distress, or *reward* and *punishment*. A number of different kinds of pleasure and distress are further specified, and the 'right' rules can be set up on the simple basis of establishing those which lead to reward or obviate punishment in the experience of the individual.

Sometimes the rules may safely be left to the individual's direct experience. Sometimes, especially where the avoidance of danger is concerned, this will not work, for the first experience which should teach the rule may be fatal. One alternative is to instruct the individual animal to learn its rules on the basis of indirect experience—for instance, by imitation or some other form of *social* transmission. For the chromosomes of a lower animal can also count on a reliable social environment common to nearly all members of the species. Sometimes, however, where particular rules are likely to be specially regularly valuable to a species, they may be encoded and transmitted in full detail in the chromosomes (cf. Medawar, 1951). Natural selection favours members of the species which are so constituted as to learn some particular rule most readily.

As this sort of selection continues over many generations, more and more detail is encoded in advance, and the experience which is to trigger off the rule may become slighter and less necessary; finally, all the rule requires for its development or maturation (as it is then called) is the normal physical environment of the species (without which the individual cannot in any case develop properly, and which of course is still 'assumed' by the chromosomes). Such a rule is then said to be *innate*, while all other rules are said to be *acquired*, since they are developed as a result of *specific* experiences, and not merely as a result of the general conditions necessary for normal growth. The distinction may be made on both motor and sensory sides. A particular motor pattern may or may not require specific training or practice, and reactiveness to a particular sensory input may or may not require specific previous experience.

Acquired rules of behaviour are sometimes called habits, while innate rules are referred to as instincts. But once set up, the two cannot be distinguished. As Charles Darwin put it, 'if we suppose any habitual action to become inherited . . . then the resemblance between what was originally a habit and an instinct becomes so close as not to be distinguished'. The innateness of such a rule is technically laborious to determine, and this has in fact rarely been done. It is therefore inconvenient to use two different terms when we are studying the rule itself, since we often do not know which to apply to it. Both kinds of rules are best referred to as *instinctive mechanisms*. The terms instinct, instinctive, etc., will always be used in this book whether the rule concerned is innate or acquired, and whether or not it is common to a whole species. In ourselves, very little behavioural apparatus is innate, and nearly all the abundant instinctive mechanisms which hamper our intelligence are acquired in the course of our individual experience.*

To understand how these instinctive rules in lower animals are organized, we must imagine ourselves in the role of natural selection, and see how we should equip an *un*intelligent animal with a system of rules which shall ensure its survival and reproduction in as many situations as possible. We can start with a notion developed by Ashby (1952), that of essential variables. An animal will continue to survive only if certain variable quantities are kept within a narrow range, determined in general by the properties of living matter. Thus, in a vertebrate, the temperature of the blood must remain within limits; the acidity of its blood; the ratio of water to other constituents and of these (sodium, potassium, calcium, etc.)

* See Appendix 5: Instinctive Mechanisms: Innate and Acquired, Monoethic and Polyethic.

to each other; the presence of food substances such as sugars; the accumulation of harmful products of the chemical reactions of living matter; the supply of oxygen; all these and many other variables must be kept within a narrow range of variation. It matters not how much blood sugar is present if the blood is boiling; each variable is essential to life in its own right. The maintenance of these variables within their ranges is performed to some extent, especially in mammals, by adjustments within the body—there has in fact been a pronounced evolutionary trend in this direction (cf. p. 22). Maintenance of blood temperature within limits is, for instance, assisted in mammals by many internal regulations, while reptiles must do it largely by restricting their activity to particular places or times of day. But in all vertebrates some at least of this maintenance is delegated to overt behaviour.

We thus begin with the given requirements of the essential variables, which we can call *needs*. In figurative terms, we can visualize the working of the instinct system somewhat as follows: to each essential variable, or cluster of these, is assigned a pointer-reading on a dial, parts of which are marked in red and indicate a movement of the variable outside the safety range. Each pointer is allotted a particular central nervous mechanism, or *primary drive*. Such primary drives may be hungers for particular substances, thirst, and so forth. There are two kinds of situation which endanger the state of the essential variables, which we can distinguish as *routine* and *emergency*. Routine problems arise from a slow drift of one or other of the pointers towards the red zone. An intelligence system would scan all the pointers and predict which can be ignored for the time being and which must be attended to at once. A similar result can be obtained in a rough and ready manner by a sort of travesty of parliamentary representation. Each central-nervous drive mechanism is caused to rise and fall in activity with the movements of the pointer (the need) to which it is geared—thus the greater the dehydration of the tissues, the greater the thirst. The drive mechanisms are then caused to *compete* for the control of behaviour, much as we saw in the case of the clasping and unclasping mechanisms discussed in the last section. At any given time, a balance is struck in this way and one drive may become dominant. All behaviour is then concentrated on the satisfaction of the corresponding need, until a cut-off mechanism, signalling immediate or now certain satisfaction of the need, reduces the level of the dominant drive and permits another to become dominant. Such competitive interactions are indeed well known at all levels of the brain and spinal cord. In contrast

to the intelligence system, which permits continuous scanning and repeated change of strategy, they have a considerable inertia. If this were not so, that is if the dominant drive were not allowed a fairly long innings, no drive in the instinct system would be active long enough to satisfy *any* need (cf. Tinbergen, 1951).

We thus return to the important concept of *mood* (p. 46). This can be very strictly defined (Russell *et al.*, 1954); but for our purposes a simpler formulation will do: the mood of an animal at any given moment is simply the state of all its drives at that time (Russell, 1953). The competition of drives is thus projected in time as an alternation of moods. This is illustrated in *Fig.* 4. The commonest type of mood in lower animals is one in which one drive is dominant—a simple mood. Sometimes two or more drives may share control of behaviour for a moment, giving rise to a conflict mood—to which we shall return later. In a particular simple mood, an animal shows a high degree of dissociation, as we have seen (p. 46). A wholly instinctive animal would have no continuous thread of awareness or personality at all. It would be several different animal personalities, corresponding to the different possible moods. To this condition the lower vertebrate animals must often approximate.

Besides the routine problems, the essential variables may be threatened by two different kinds of *emergency*. First, there may be some change in the external environment which threatens, unless opposed, a sudden violent swing of all pointers at once into the red: this is the emergency of *danger*, typified by the pounce of a predatory enemy. Second, there may be an obstacle present which, if allowed to persist, will hinder the operations of routine maintenance: this is the emergency of *frustration*, typified by the appearance of a rival of the same species or a competitor of a different species. The simplest ways of dealing with such crises are those of *attack* and *flight*; the animal may stay put and attempt to drive off or inactivate the obstructive or dangerous object, or it may move to a different region whither the latter no longer accompanies it. The drives of *rage* and *fear* may assume more complex forms, however, when woven into the web of interacting instinct mechanisms. Usually they are endowed with special privileges, in that they can suddenly and easily oust any other drive from dominance, and rapidly initiate their own characteristic moods.

Finally, there are instinct mechanisms, those of *reproduction*, which do not concern the essential variables of the individual at all. These include, in particular, the drives for *mating* and *parental* behaviour. In vertebrates lower than primates (monkeys and apes), they are very largely under the
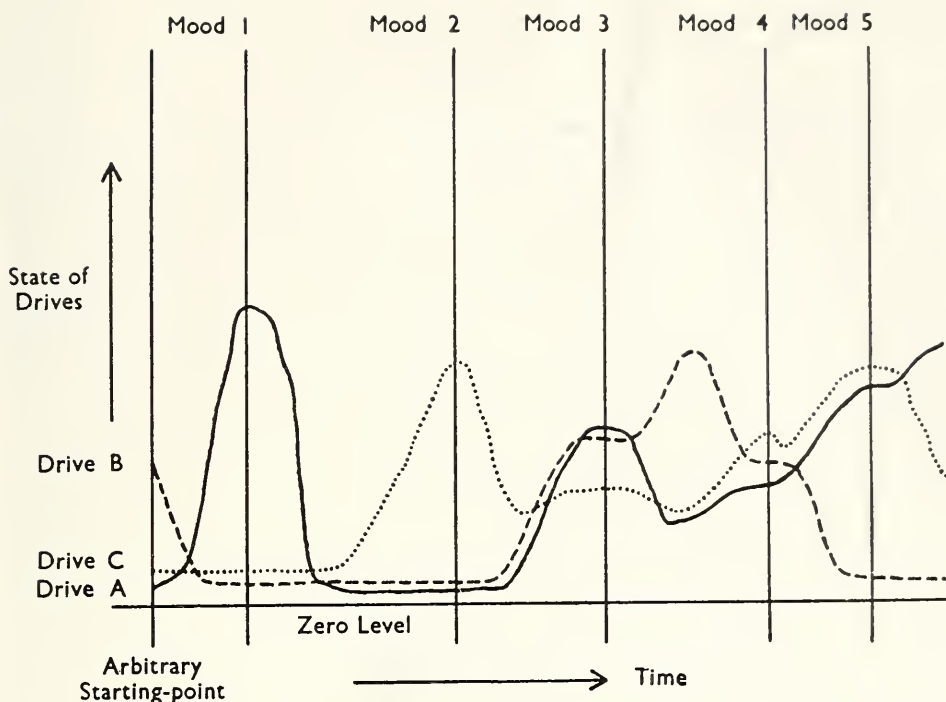
FIGURE 4—DRIVES AND MOODS (After Russell, 1953; modified)

The diagram shows, schematically, how we may suppose the state of three drives in an entirely imaginary animal to fluctuate in the course of time. The state of each drive is represented as a graph moving up or down along the direction of time. The animal is supposed to have only these three drives. The animal's mood at any given moment of time is then defined simply by a vertical line drawn through the three graphs at a particular point. In any single mood, each of the three drives will be at a particular level, and the mood is simply described by stating the three levels. For concreteness, we might suppose Drive A to represent the mating drive, Drive B the attack drive, Drive C the flight drive. (Compare Fig. 25, p. 202.) In the present diagram the fluctuations drawn are quite arbitrary and only designed to illustrate *some of* the types of mood that can occur, as follows:

        Mood 1. Dominated by Drive A (Simple Mood)
        Mood 2. Dominated by Drive C (Simple Mood)
        Mood 3. Triple Conflict Mood
        Mood 4. Triple Conflict Mood
        Mood 5. Double Conflict Mood (A and C)

control of sex hormones produced by the testis, ovary and pituitary gland (cf. *Fig.* 2, p. 45). In some species, when the reproductive drives are active, they are permitted to supersede even the emergency drives in acquiring and retaining control of mood—in other words, a mating animal may be oblivious of danger; this is true of many frogs and toads.*

The basic primary drive mechanisms may take many special forms. They may, for instance, be classified into *appetites* or *aversions* (Craig, 1918; Hayes *et al.*, 1953). An appetite mechanism is one in which overt behaviour is switched on by changes within the central nervous system or within the body in general; particular patterns of external stimulation are searched for, and a final cut-off pattern of inputs, when eventually obtained, switches off the behaviour again by drastically reducing the drive. Such, in outline, is the course of hunger and feeding. An aversion mechanism is one in which overt behaviour is switched on by particular changes outside the animal, and switched off again when these changes are no longer in evidence, as a result of some aversive action such as retreat to a different environmental region. Most routine drives, and also the reproductive ones, are of appetite form, while those of rage and fear in simple form are aversive. But as the organization of the whole system becomes more complex, this simple classification becomes inapposite. One common special arrangement is a *rhythmical* process, partly or wholly organized within the brain, causing intermittent rise of a given drive. Thus sleep is an appetite in many animals which search actively for a suitable safe place and adopt a particular posture before going to sleep (Holzapfel, 1940). But sleep is usually set off in a definite rhythm. In man this rhythm is established early in life as an acquired instinctive mechanism and in most people can only be changed within definite limits (Kleitman, 1949), except in certain unusual conditions: polar explorers in winter tend to average about eight hours' sleep in twenty-four, but this sleep may occur at any time of day or night, and the lengths of both sleep and waking intervals become highly variable from person to person, so that, on one such expedition in winter, 'there was never a time when someone was not in bed or someone out of bed' (Edholm, 1956).

Instinctive rhythms may be anything from the order of seconds to that of years (Kleitman, 1949; Aschoff, 1955a, b). The presence of a breeding season in most lower animals in nature is one expression of a reproductive rhythm; there are others. Such rhythms are partly geared

* See Appendix 4.

to regular changes in the environment, but these may act *via* changes in internal mechanisms, so that the immediate cause of mating behaviour may be a rise in the level of a sex hormone in the blood.

The difficulty of classification becomes further obvious when we consider a routine mechanism of great importance, that of skin comfort, or care of the body surface (cf. Russell, 1959c). This may take the form of an aversion: a scratching movement may be set off by the landing of a parasite (e.g., a flea) on the surface of the body, and brought to an end when the irritation is removed. But in many vertebrates preening or grooming are continuously active over much of the animal's life, and the animal is liable to fall back on these movements, as it were, when it has nothing better to do (cf. Tinbergen, 1953c). In this way harmful accumulations of dirt are prevented. Some animals may go further and actively seek opportunities of bathing. Similarly, one way of avoiding danger is to seek a safe place where other activities can be pursued without interference. These secondary appetite activities become very important in ourselves, and the extraordinarily unclean habits of some human cultures in history must be regarded as an active suppression of comfort activity. The simple notion of routine appetites and emergency aversions soon becomes blurred as complexity increases. But we can usefully make a secondary distinction between *constructive* activities, which contribute to greater all-round efficiency, and *urgent* activities, which deal with some immediate problem and contribute only negatively to future survival and reproduction.

We must now consider what is actually meant by *reward* and *punishment*, the twin engines of acquired instinct formation. In the appetite case, those rules are adopted which lead, not necessarily to actual satisfaction of a need, but to occurrence of the cut-off input pattern that switches off the drive—the *signal* of satisfaction. Thus the taste of saccharine is an adequate reward for establishing instincts in laboratory rats, though it has no nutritive value and therefore does not really satisfy a need. In nature, such signals are usually followed by actual satisfaction, for they are naturally built in on this basis. Conversely, avoidance of punishment does not necessarily mean avoidance of situations which cause actual damage, but the removal of an input pattern which evokes an emergency drive. In cats and monkeys, electrical stimulation of certain regions of the *brain* will act as punishment (Delgado *et al.*, 1954; Rosvold and Delgado, 1954; Delgado, 1955). These animals can be trained to perform some acts and refrain from others if conformity to these rules

means the absence of this sort of stimulation. (It should be mentioned that the brain itself is insensible to pain—understandably, since in nature damage to an animal's brain only occurs in lethal situations, and pain, the signal of damage, would be superfluous. Moreover, the effect described could not be obtained when other brain areas were stimulated.) These special brain regions, therefore, were the sites of emergency-drive mechanisms, and punishment means the activity of such a drive. An animal will tend to adopt rules of action which reduce to a minimum the activity of its emergency drives. Since both reward and punishment operate in terms, not of real needs and dangers, but of the inputs which signal them, it is not surprising that in some circumstances the *same* actual treatment of an animal may serve either as punishment or reward. Konorski (1950) trained dogs to bend their legs in order to avoid a puff of air blown into their ears; the same dogs could be trained to react to precisely the same air-puff as a signal for feeding-time. Such peculiar overlaps are unlikely to occur in nature, but their production in experiment is another illustration of the totally automatic nature of instinctive function. Some of the signals which constitute reward and punishment for animals in nature may be innate. It is possible that in non-mammalian vertebrates there are as many different reward and punishment mechanisms as there are primary drives. In the mammalian brain, there seem to be centralized focal mechanisms whose activities correspond to pleasure and distress (as in the cats and monkeys just considered), though the type of pleasure or distress may be determined by a sort of modulation by particular drives (Delgado, 1955). In mammals there has been evolved a systematic organization of activities *within* the body into routine and emergency systems (Hess, 1948; Nicol, 1952; Russell, in press *a*). Correspondingly, mammals seem to have a tendency to classify objects in their environment as *generally* positive or negative, suitable for approach or avoidance (Miller, 1951; Chance and Mead, 1953). All this may be associated in mammals with an increase in prophylactic or constructive treatment of the environment (p. 55). One prerequisite for the evolution of intelligence must have been the growth of some sort of community of principle between the several drives, and the appearance of generalized pleasure and distress mechanisms in mammals may correspond to this.

But the typical fully instinctive system of the lower vertebrates may be envisaged as follows. We start with a number of primary drives, and mechanisms of reward and punishment which lead to the establishment of clear-cut instinctive rules. This process is often called *conditioning*.

Each drive, therefore, starts as a little separate evolutionary machine, linked with the others even from the outset only in crude ways, though there may be a certain amount of interweaving. The drive provides a general goal, corresponding (in the simple case of an appetite) with the signals that cut it off. This goal specifies the limits within which this miniature evolutionary machine is to work, and delimits the executive behaviour it controls—that is, the search in the environment for inputs corresponding to the goal. Parts of this executive behaviour may already be determined in advance (innately), and are therefore already fully automatic. The conditioning method is used to specify it further and more and more completely, until the activity of the drive becomes more and more automatic (though it may retain corrective feedback— see p. 20). Reward or punishment conditioning are strictly confined to the little world of the individual drive. When each drive takes over the mood, and hence the running of the whole animal, it finds its conditioned acquisitions waiting for it, and proceeds to build in more. Any conditioning that has taken place in other moods is ignored. (It is like a new administration bringing in its own civil service.) And meanwhile, every time the particular drive controls the mood, it proceeds to specify its own executive behaviour further and further, until this becomes more and more automatic. (In this respect it is like a totalitarian state).

Conditioning is the exact opposite of intelligence (cf. p. 35). The point can be put very simply (Russell and Russell, 1959). In intelligence, thanks to integration, the availability of a previous experience makes possible *more* different responses to a current problem from which to choose. It thus makes for greater freedom of action. When conditioning obtains, the past experience makes possible *fewer* different responses to the current problem—it usually reduces the choice to one, which is made automatically and compulsively, without any freedom at all. Intelligence is a progressive mechanism, whereas conditioning is the way in which specialization occurs within the instinct system, which indeed starts partly automatic in respect of general organization, and even of executive behaviour within drives, but has initially some degree of evolutionary mechanism within each drive. This evolutionary mechanism is there only to enable specialization to accord with the experience of the individual in its own life-time, and the specialization is done by conditioning.

Pigeons and Pigeon-holes: The Work of Diebschlag

This bald sketch may now be filled in with some illustrative detail. We can use for this purpose an experimental study of pigeons by Diebschlag (1941). His experiments are so simple and clear that they require no special knowledge for their understanding, and a summary of parts of his paper will serve as a perfect commentary on the generalities of the last few pages.

Diebschlag kept his pigeons individually in cages in a laboratory, and first accustomed them to their surroundings, which took about three days. For training purposes, he provided food (seeds, etc.) in little dishes, which stood on wooden plates mounted on little posts. The plates were covered with coloured paper and the dishes surrounded by paper of the same colour, so the pigeon could only see the food when it had actually mounted the post. He trained the pigeons to climb the posts in search of food by the simple expedient of letting each bird hop on to a stick, which he lifted to the top of a post, where it found the food. The pigeons soon learned to climb the posts when hungry. In the experiments, a pigeon was considered to have chosen a given post if it mounted it. The next objective was to induce the pigeon to choose one particular post—we shall call it the (+) post—and avoid another post —we shall call this the (—) post. Diebschlag first tried putting no food on the (—) posts. But apparently hope springs eternal in the pigeon breast, and even after many runs (i.e., trials) they continued to visit the foodless posts. Diebschlag now tried to frighten them away from the (—) posts by means of a scare-crow, or scare-pigeon, which he flourished when they approached these. This led to avoidance of *all* the posts. The pigeons could not draw the fine distinction between the (+) post, where they had not thus been scared, and the (—) post, where they had. They preferred to play safe. Finally, Diebschlag achieved his preliminary object by providing the (—) posts with food in dishes, but covering these with glass plates. The birds now mounted the (—) posts and pecked in vain at the covered dishes up to one hundred times. But after three such attempts, they avoided the frustrating post in future. This method could therefore be used as a basis for training the pigeons to choose between (+) posts, with accessible food, and (—) posts, with inaccessible food.

Diebschlag now started by using two posts, exactly alike, and about 40 cms. apart. One was (+), the other was (—), and the object of the experiment was to train the birds to choose the left-hand or right-hand

post. The food was set up out of sight of the birds, and the experimenter opened the cages and watched the proceedings through a crack in the door of the laboratory. After about ten runs, a pigeon would only visit the (+)—say the left-hand post. But this was not really a true left/right choice, for if the bird were made to approach the apparatus from the other side it still visited the (+) post (now obviously on the pigeon's right). In other words, it was not choosing the 'left-hand' post, but 'the post standing in a given place'. But after about fifteen successive runs, the pigeons had learned to choose specifically the (e.g.) left-hand of two posts, and if they were now made to approach from the other side they chose the left-hand (now actually the (−)) post, as shown in *Fig. 5*. This may be called true side-choice. From now on, errors in side-choice were surprisingly rare. Thus one pigeon made no mistakes in forty-nine runs, another no mistakes in fifty-nine runs; another made three mistakes in fifty-one runs, and another one mistake in sixty runs.

Training in mammals usually has the effect of gradually reducing errors; if these are plotted against successive trials, characteristic down-sloping learning curves are obtained. The very sudden drop is characteristic for birds; mammals trained to make a similar choice continue to make errors for a long time. The regularity of correct choice in the pigeons might seem commendable, but it means that a rigid instinctive mechanism has been set up by conditioning. For what is meant by 'error' here is only an 'error' from the point of view of the experimenter, who wants to establish a side-choice. Evidently (*Fig. 5*) if the bird is made to approach the apparatus from the rear, a 'correct' choice in this sense may in actual fact be wrong—it will not lead the bird to accessible food. The pigeon is thus ceasing to 'err' in exactly the same sense as a 'good' totalitarian party member. The mammals are not completely intelligent; but, in the absence of intelligence, their lesser readiness to commit themselves is a guarantee of flexibility should the situation change.

This appears very clearly from the results of Diebschlag's next experiments. He called the training discussed so far, *first training*. When the choice was firmly conditioned, he proceeded to *re-train* the pigeons. That is, he now made the formerly (+) post into a (−) post by covering up its food-dish, and the formerly (−) post into a (+) post by uncovering its food-dish. A pigeon, which had learned in first training to choose the left-hand, must now unlearn this and choose the right-hand post. Mammals, faced with such a task, usually learn the new trick more rapidly
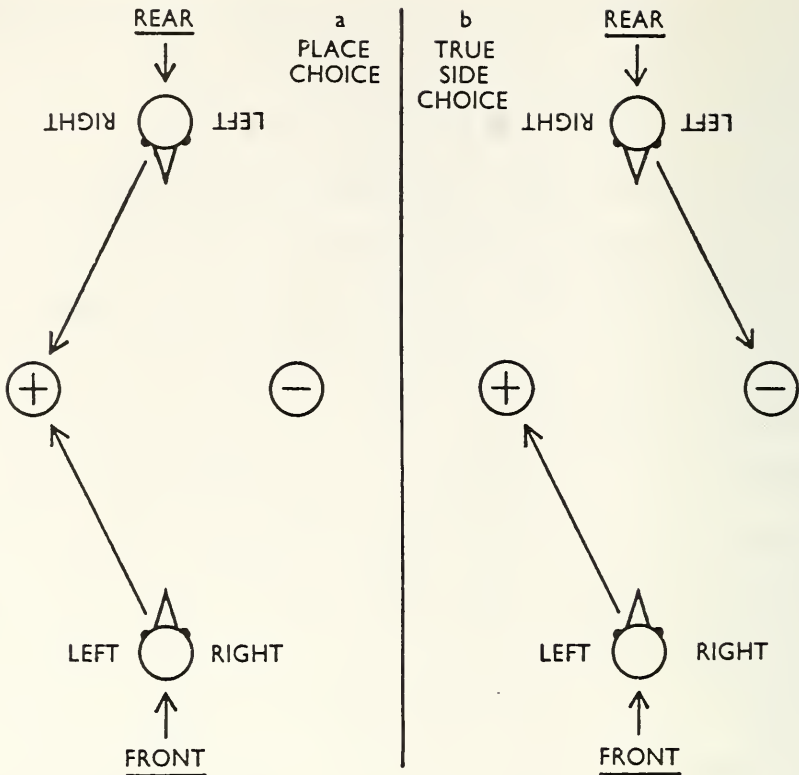
FIGURE 5—DIEBSCHLAG'S PIGEONS
PLACE CHOICE AND TRUE SIDE CHOICE
(Original, based on Diebschlag's account, 1941)

Diebschlag's apparatus and pigeons shown as they would appear from above in an airborne bird's-eye view. The posts are shown as circles, and the pigeons' heads in a formal diagrammatic way.

(a) Place Choice. When approaching from the front, the pigeon is trained to choose the post on its left side. When made to approach from the rear, the pigeon chooses the *same* post, although this is now on its right side.

(b) True Side Choice. When approaching from the front, the pigeon is trained to choose the post on its left side. When made to approach from the rear, it still chooses the post now on its left side, though this is in fact a different one.

than the original one, because they have 'learned to learn'. In other words, they have generalized the trick of learning a choice in itself, and can now apply it to the changed situation. This is a progressive development, and the herald of a dawning intelligence. Very different is the case with the instinctive conditioning process in birds (of which pigeons are not the only species to have been studied in this way). Re-training of the pigeons took about twice as many runs as first training—see *Table I.*

TABLE I

Retraining in Pigeons

(After Diebschlag, 1941, part of his Table I)

Experi- mental Animal	Number of runs required for establishing true side choice			Total number of runs		
	F	R	Ret	F	R	Ret
T1 (male)	17	31	14	66	33	27
T2 (female)	14	29	31	73	69	35
T3 (female)	16	37	32	67	82	40
T4 (male)	15	29	17	75	32	23
T5 (male)	16	14	17	21	19	26
T6 (female)	14	42	19	72	45	28
T7 (female)	13	13	12	17	17	15

The table shows the results obtained with seven pigeons (called T1, T2, T3, etc.—
their sexes are shown). The three middle columns show the number of runs required
to establish the 'correct' true side choice (i.e., that intended by the experimenter)
during *first training* (F), *re-training* (R) and *return-training* (Ret). The three columns
on the right show the total number of runs carried out during each of these pro-
cedures. Thus T1 was given 66 runs during first training, and established a correct
side-choice after the first 17 of these; he was then given 33 runs in the re-training
situation, and established the new choice after the first 31 of these; he was then
given 27 runs in the return-training situation, and established the choice required
after the first 14 of these.
For further explanation, see text.

In other words, the instinctive mechanism set up in the first training
was relatively irreversible. The last Bourbon kings of France were said
to have learned nothing and forgotten nothing. Pigeons may not be

quite so uncompromisingly instinctive as clawed frogs or Bourbons, but retreat from specialization is difficult and arduous for them. As the Table also shows, the number of runs needed for retraining depends partly on the number of runs permitted in first training. In other words, the more often the original instinctive mechanism was called into play, the more rigidly fixed it became, and the less easy it was to replace it by a new pattern. Repetition of an instinctive pattern tends to reinforce it. Finally (again see *Table I*), Diebschlag practised what he called *return-training*. In other words, he switched the posts back to their original status in first-training. If the left-hand one was (+) in first-training, and (—) in re-training, it now became (+) again. If re-training had gone on for many runs, return-training was about as difficult as re-training; but if return-training was started immediately after re-training was complete, it took very few runs: the pigeons were only too ready to return, or regress, to their old ways.

The relative irreversibility we have just considered is associated with a surprisingly long retention of error-free performance, even in the absence of reinforcement. In three birds investigated, Diebschlag found that a side-choice could be elicited in accurate form *eleven months later*. He notes that this sort of fixity is likely to be of special advantage to migrant birds, which can return year after year to exactly the same nesting-site. But as he points out, it is absurd to compare this fixity of an instinctive mechanism with the sort of memory of past experience which can be used to guide intelligent behaviour. The advantages of instinctive behaviour (outside the laboratory) hinge on the complete stability of the environment. That animals so markedly instinctive as most birds have survived at all is a tribute to the relative constancy of conditions on earth. But we ourselves are rapidly changing these, and often have to step in and create artificial constancies—bird-sanctuaries and wild-life reserves— for our unintelligent fellow-vertebrates. (A similar problem arises with savage human cultures—see Chapter 10.) It is interesting that young pigeons were found to behave much more like mammals. We can regard the relative flexibility of adult mammals (and some birds—Lorenz, 1956) as a case of a process which has occurred many times in organic evolution —the persistence after sexual maturity of a characteristic initially confined to immature animals. This must have been one of the ways in which intelligence evolved, and specialization in the individual life-time was diverted into progress.

In what did the original (first-training) side-choice consist? Several

experiments showed that in choosing (say) the left-hand post the pigeons were in fact reacting to both posts—positively to the left-hand one, negatively to the right-hand one. For instance, side-training could be done whether the two posts were near together (40 cms.) or far apart (two metres or more). But if it had in fact been done with the posts 40 cms. apart, and they were *then* moved two metres apart, the pigeons behaved uncertainly and restlessly. Sometimes they returned to their cages without more ado. Sometimes they mounted one of the posts, *whichever* was nearer to the original position. In other words, they had learned to choose 'a post which has a certain post standing 40 cms. to the right of it'. Foiled by the new conditions, they fell back on their original tendency (p. 59) to choose a certain *place*. On the other hand, they were not at all put out if presented with as many as eight similar posts, simply choosing the one on the extreme left. If, however, only one post was presented, the pigeons were restless and timid. Only a very hungry bird, after about three runs, would finally mount the solitary post. But while eating here it was jumpy, and the slightest disturbance would send it scuttling back to its cage. It is clearly important for the pigeon's equanimity to be quite sure it is *not on the* (—) *post*. The same mechanism appeared during retraining. Suppose the left-hand post was (+) in first training, and now became (—), while the right-hand one was (—) and now became (+). (In fact, all Diebschlag's experiments were done both ways round.) At first, the pigeons continued for several runs stubbornly to mount the now unsatisfying left-hand post. After this, if only mildly hungry, they stayed in their cages and left the whole apparatus alone. If considerably hungry, after three runs they began to take a certain interest in the right-hand post. But to get results Diebschlag had to move the right-hand post so near the left-hand one that the pigeon, standing on the left post, could see the uncovered food on the right-hand one. After hesitating for up to six minutes, the pigeon gingerly tip-toed over to the right-hand post and started feeding, but with long pauses between beakfuls. A knock on the laboratory door from outside was enough to send it scurrying for its cage, and after one such scare it would approach the right-hand post even more hesitantly than before. In some cases it stood on the left-hand post and stretched as far as it could to reach the food on the right-hand post from this 'safe' position.

All this has a most interesting explanation. Socially, pigeons, like many vertebrates, operate in terms of *territory* (see pp. 135–137). In general, contrary to sentimental notions, the doves are incredibly ferocious rivals

(see Lorenz, 1952, who describes the flaying alive of a turtle-dove by a ring-dove when they were kept together in a cage*). Unlike some other groups of animals, they have no appeasement gestures to inhibit and disarm such attacks, and rely on keeping out of each other's preserves by rapid flight. It emerged from these (and other) experiments that the pigeons regarded the place where they had been frustrated (i.e., the (—) post) as the *territory of a rival*. Avoiding the (—) post was therefore more important than choosing the correct one. To be quite sure they were in the right territory, they had to have the wrong one in view. Diebschlag was thus observing a conflict between instinctive drives and (see p. 52) the emergency one predominated. The rigidity in re-training could be mainly ascribed to the extreme irreversibility of the mechanism conditioned by fear. Territories in nature, of course, are unlikely to change owners.

But equally automatic results can be shown in the appetite drives (such as the feeding drive used in these experiments), and we come now to a striking feature of instinctive mechanisms. As the executive behaviour of a drive is gradually specialized into automatic function, further isolation or dissociation occurs within it. We begin with a goal and the relatively flexible behaviour required to attain it. But as conditioning proceeds, the reaction is split into a number of stages, which harden into a rigid sequence with no short cuts. Thus are engendered a series of what we may call sub-moods: the animal splits before our eyes into a crowd of separate mechanisms. One illustration of this is shown in *Fig. 6*. One pigeon had been trained to choose the right-hand of two yellow posts. Diebschlag now put two white posts on the way to the right-hand yellow post. After a little hesitation, the bird ran through the white posts to its yellow one (*Fig. 6a*). After seven such runs, Diebschlag moved the white posts in front of the left-hand yellow post. The pigeon was fooled. (It is the simplest and most practical criterion for an instinctive mechanism that it permits experimenters to take mean advantages and lure their subjects into committing absurd behavioural solecisms, simply by changing the environmental conditions.) As shown in *Fig. 6b*, the bird ran first to the wrong yellow post, and only after mounting this moved over to the correct one. For the next eight runs (*Fig. 6c*), it did not actually mount the wrong post, but continued to make the detour through the white posts and past the wrong yellow one. Diebschlag now moved the white

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* The flaying was nearly complete when Lorenz arrived and intervened. It was not, of course, a deliberate experiment.
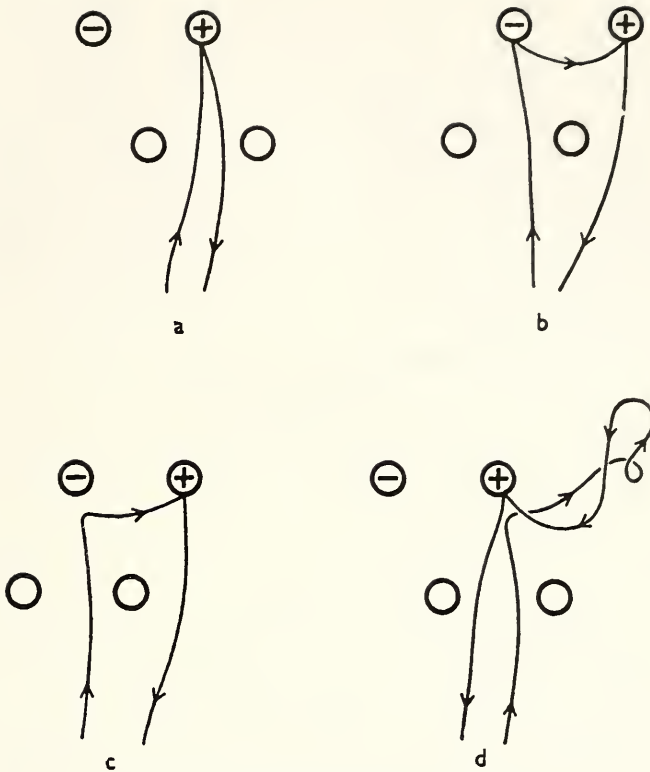
FIGURE 6—DIEBSCHLAG'S PIGEONS
THE SPLITTING OF A REACTION INTO STAGES
(From Diebschlag, 1941, Fig. 1)

As in Fig. 5, Diebschlag's apparatus is shown from above. The posts are shown as circles, and the pigeon's track as a continuous line with arrow-heads to show its direction.

$\oplus$ = the (+) yellow post
$\ominus$ = the (−) yellow post
$\bigcirc$ = the white posts.

The pigeon is trained to choose the (+) yellow post. The two white posts are then added, and the pigeon runs through them to the (+) yellow post (a).

The white posts are then moved in front of the (−) yellow post. The pigeon runs as shown (b).

This detour remains for several runs (c).

The white posts are now moved back to their original position. The pigeon's track is as shown (d).

posts back in front of the correct yellow one. The pigeon hurried through, hesitated a little, and then went off on its now accustomed detour (*Fig. 6d*). Foiled again! At long last, it doubled back and reached the correct post. Clearly once the white posts have appeared, the reaction is successively split into two rules: Rule 1: 'Go through the white posts'; Rule 2: 'Turn right and move over'. These rules rapidly become so compelling that they grossly interfere with the simple problem of reaching the right yellow post. The goal of the reaction has been lost sight of, and the whole performance reduced to a sequence of *stereotyped* actions, which cannot easily be adjusted to reality.

One aspect of the splitting process, whereby executive behaviour is broken into a sequence of reactions, is the appearance of a special form of appetitive behaviour. Once the sequence is complete (and perhaps some such sequences may even be innate), only the last step is a search, as originally, for the cut-off input which corresponds to the goal. Each other stage of appetitive behaviour is merely a search for a particular (conditioned or innate) input *which will release the next stage* (Tinbergen, 1942, 1950, 1951; Hayes *et al.*, 1953). Thus we arrive at a kind of appetitive behaviour for special signals which in experimental conditions may have nothing whatever to do with ultimate satisfaction. One of Diebschlag's pigeons was trained to choose one of two similarly coloured posts (say the *left* one: Diebschlag only specifies that it was a side choice). If the *left* post was now replaced by a differently coloured one, the pigeon dared not mount it. But when, at the next run, the bird was allowed to approach from the other side, it cheerfully chose the familiarly-coloured post on the left side (from the pigeon's new viewpoint—see *Fig. 5*), though this was of course the (—) post. After two such runs, Diebschlag made it approach from the front again. After some hesitation, the pigeon *flew across* and triumphantly approached the familiar-looking wrong post! This looks a clever trick, but obviously it was of no real advantage to the bird. It was simply displaying some flexibility in the search for a rearrangement of its environment which would provide its next stimulus and release a quite useless reaction. This sort of abuse of flexible behaviour is, as we shall see, only too common in ourselves. Normally, however, in animals the course of further isolation within a drive leads to increasingly stereotyped specification of each step of the reaction chain. More illustration can be obtained from the final and most dramatic experiments of Diebschlag.

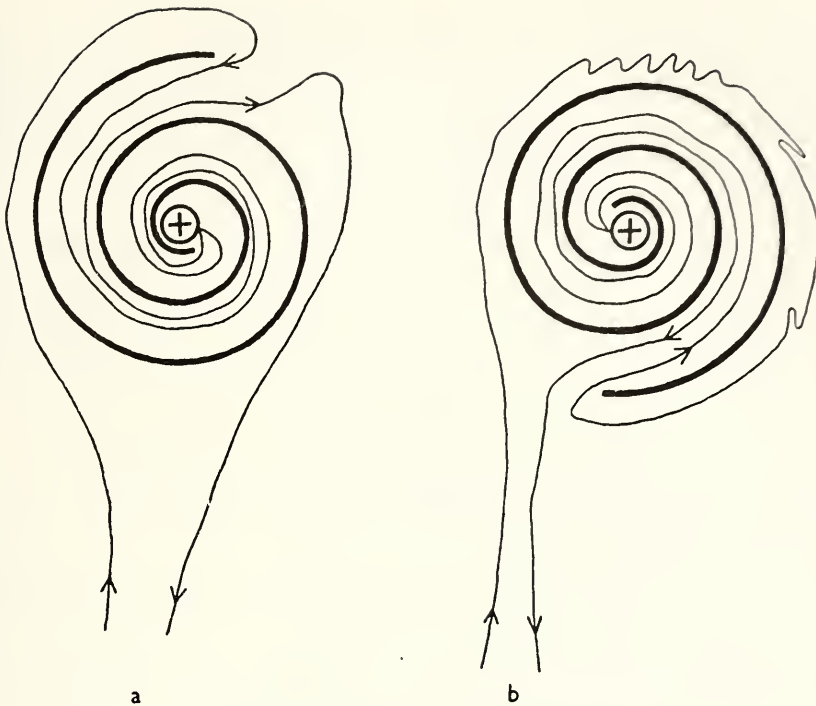These were made with a spirally coiled screen of wire mesh. At the

FIGURE 7—DIEBSCHLAG'S PIGEONS
FINDING THE ENTRANCE (From Diebschlag, 1941, Fig. 7)
The spiral represents Diebschlag's spiral screen maze. The other conventions are as in Fig. 6, p. 65.
   The pigeon is trained with the spiral in the position shown at (a). The spiral is then shifted round to the position shown at (b): the pigeon now misses the entrance, searches for it in its former position, and finally reaches it after a complete circuit of the outside of the screen.

centre of the spiral maze so formed stood a yellow post with accessible food. The coiling had to be done gradually, for the birds were quite unable to grasp the requirements of this simple situation. Entering the spiral, they were naturally obliged over parts of the way to move away from the visible food-post, and this proved such an irresistible attraction that they simply ran to and fro without ever reaching the centre. (Just before the last few pages were first drafted, we watched an exciting film on television of David Attenborough's attempt to catch a Komodo dragon in a sort of wicker-work trap. The bait—a dead goat—was at the further end of the trap from the door, which was to be shut by a trigger when the reptile was right inside. Mr Attenborough was nearly defeated, not by the intelligence, but by the instinctiveness of the dragon. It could

hardly tear itself away from the closed end of the trap, where the smell of the bait was strongest, and it was not until after some agonizing delay that it finally found the entrance.) Finally the pigeons reached the centre by accident, and training could then proceed; from then on, they could steel themselves to run right round the spiral to the post at the centre. But the whole reaction was still completely instinctive. If the spiral was shifted—*Fig.* 7—they were quite put out, and passed the actual entrance without 'noticing' it, to hover uncertainly at the place where it had been before, only finding it in its new position after a complete circuit of the outside of the spiral. If the screen was now covered with white paper, so that the food post was invisible, the birds showed no interest in the contraption at all. Out of sight, out of mind. So the experimenter covered the screen gradually, a thin strip of paper at a time, and thus finally induced the birds to run right round the now opaque-walled spiral to the centre.★

Besides the yellow food-post at the centre of the spiral, another yellow one was set up at the entrance—*Fig.* 8. One pigeon was trained to eat first at the entrance post, and then go on to eat at the centre post. The reaction became a rigidly stereotyped sequence, and the exploration of the first post was a sufficient and necessary stimulus for releasing the second stage of the reaction—search for the centre post. If the entrance post was removed (*Fig.* 8c), the stimulus was lacking, and the second stage could not be released—the animal returned to its cage without entering the spiral. Thus a whole sequence breaks off if one of its links is missing. Diebschlag now narrowed the spiral passage so that the bird could only get in or out by climbing over the entrance post. He put this post back, but without food (*Fig.* 8b.) The bird stepped over the entrance post and went on to the centre one, still supplied with food, which it ate. So far, so good. But its troubles were only beginning. For when it climbed on to the entrance post on the way out, the resulting stimulus inexorably released the second stage all over again. Back the bird had to go to the centre. And so the wretched pigeon was obliged to double back and forth between the two posts as many as ten times, although the food on the centre post had been eaten and there was none anyway on the entrance post. There could hardly be a more striking illustration of the compulsiveness of instinctive mechanisms. The bird was forced to go on repeating actions utterly unrelated to its real needs and the actual environment. How it finally escaped is of some interest. At some point in the

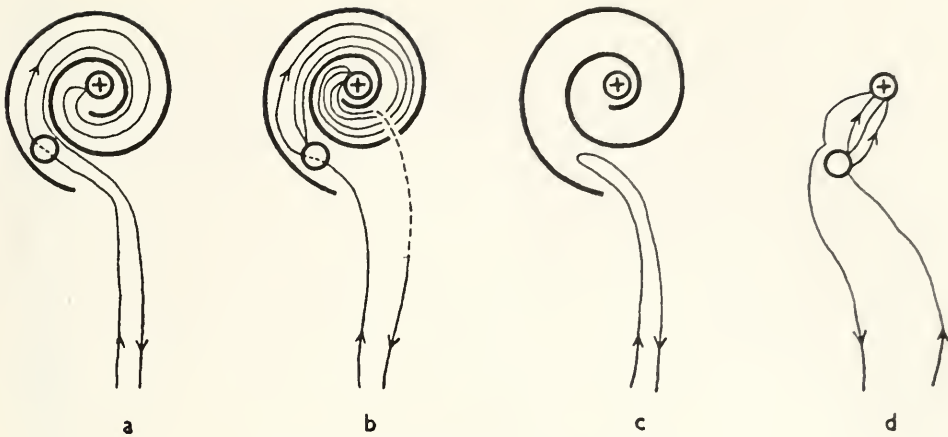★ See Appendix 6: The Imaginary Rival.

FIGURE 8—DIEBSCHLAG'S PIGEONS
A COMPULSION TRAP (From Diebschlag, 1941, Fig. 10)
The conventions are as in Figs. 6 (p. 65) and 7 (p. 67). The original training situation is shown in (a). The other situations are as described in the text, *q.v.* for further explanation.

spiral it stopped running and *flew*. It fluttered over the wall of the spiral, and so at last got away to its cage. Now special patterns of locomotion in birds are often characteristic for particular moods (Hinde, 1953a). The fact that the bird began to fly at this juncture (as opposed to walking or running) tells us that its overall *mood* had changed. Specifically, it shows that the flight (i.e., escape) drive had taken over, ousting the whole feeding drive from control. This may have occurred because the bird had been kept so long away from its home base (i.e., its cage), or because the frustrating territory it was on began to seem increasingly inhospitable (cf. p. 64). In either event, once this overall mood change occurred, the bird could escape from the behavioural trap, which no longer affected it. (It might be supposed that once the bird had begun to fly it could have flown over the wall by accident, and thus passed out of sight of the compelling stimulus; but this explanation will not meet other experimental results.) Finally, as shown in *Fig. 8d*, even the oscillation between the posts became itself to some extent stereotyped. For when the spiral was removed, the bird still ran to and fro between the posts a few times, though it now escaped fairly easily from the (imaginary) vicious spiral.*

It can be seen that in this experiment each stimulus threw the bird into a sub-mood dominated by the next step of the reaction. In this mood it could not recall what it had itself just done in another mood; it was

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* See Appendix 7: Pigeons and Digger-Wasps.

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simply forced to proceed in accordance with the step that had just been released. As with the clawed frogs, so with the pigeons, and the cases are so parallel (p. 46) that we can justifiably argue from the former to the latter. The entrance to the spiral had a similar releasing property. If, after leaving the spiral, a bird turned to the entrance, it had to go in and run right to the centre again. One bird did this six times. The last time round Diebschlag had the definite impression that the bird tried hard to get back to its cage without going near the entrance again, as if terrified of being compelled to make yet another vain run. It is hard not to be reminded of a partially cured alcoholic passing a pub. The relationship is more than an analogy (cf. Chapter 6). It is therefore worth noting that this avoidance of the entrance could be considered as a secondary compulsion, introduced (probably by the flight drive) to counter the first. The centre of the spiral was another releasing stimulus. If the food-post was set up half-way into the spiral, the birds, after eating on it, flew on to the centre, and were then caught in another mood trap, oscillating between centre and post until they escaped in the usual way by taking to their wings. One bird, after four such oscillations, flew over the *post* (instead of over the wall) and then ran back 'visibly relieved' ('*sichtlich erleichtert*') to its cage. Once again we may surmise that the flight drive had taken over, to such an extent that the bird could actually pass the post so compulsive in another mood. With these last examples we shall close our summary of these elegant experiments. They have abundantly illustrated the instinctive properties of isolation, rigidity, stereotypy and compulsiveness. It remains now to consider certain special features which will prove relevant when we come to those instinctive mechanisms which limit the operation of intelligence in human behaviour.

Releasing Mechanisms and Reaction Chains

We can begin by considering what is called the releasing mechanism—that is, the mechanism which releases each stage of a chain of reactions such as those we have described. In the instinct system, there are two modes of reaction to living or non-living objects. One of these we call *familiarization*. The animal builds up a complete picture of an object as the signal for releasing a reaction stage. Any slight change in the object now disturbs the reaction, for the releasing mechanism is now related closely and in detail to the form of the object. The process of familiarization involves some degree of abstraction (and in some animals even

exploration), but it is not put to any intelligent use, remaining a signal for reactions just as automatic as any.

If an animal has become familiar with a particular object, it now 'recognizes' this by a very large number of complex clues. It will therefore prefer the actual object to any model, and, if tested with models, will react most frequently to the model of highest fidelity (in the sense of the hi-fi enthusiast)—that is, to the model which resembles the actual object in most respects, and reproduces all its properties equally well (Russell, 1957*a*; Russell and Burch, 1959). But there is another, quite different, mode of reaction which uses what are called *key stimuli*. The animal now reacts only to a few salient characteristics of the object, which in nature are likely to belong to this object and not to others, and ignores all other characteristics. When key stimuli are in use, the animal will react more strongly to a model, even of very low fidelity, which possesses these key properties, than to an otherwise quite hi-fi model without them. Human hunters and trappers often take advantage of this property of animal instinctive mechanisms in constructing baits or lures—one need only think of the often very impressionistic 'flies' of successful anglers. In recent years, the key stimulus mechanism has been studied systematically by presenting animals with models of different kinds, especially by Tinbergen and his associates (Tinbergen, 1942, 1951 and especially 1948).

We may take instances from the study by Tinbergen and Perdeck (1950) of the key stimuli which release in young herring gulls a reaction of begging for food. The herring gull parent feeds its chicks by regurgitating half-digested food from its own beak, and the chick 'begs' by pecking at the end of the parent's beak. This beak has a red patch at the tip. *Fig.* 9 shows that a model of very poor fidelity which does have the red patch releases more begging reactions than one otherwise closely resembling the parent's head and beak, but lacking the patch. The patch is thereby shown to be a key stimulus. By a large number of experiments, Tinbergen and Perdeck showed exactly what properties of the patch itself were important for releasing the reaction. One such property was the contrast between the red and the yellow colour of the rest of the beak. Another was the colour red itself. A property of the beak as a whole was also found to be important, namely its elongation—thinness relative to length. It was now possible to construct a *supernormal* stimulus—one even better than the original object—*Fig.* 10. The thin red rod, with its three sharply edged bands at the tip, is nothing whatever like the original,
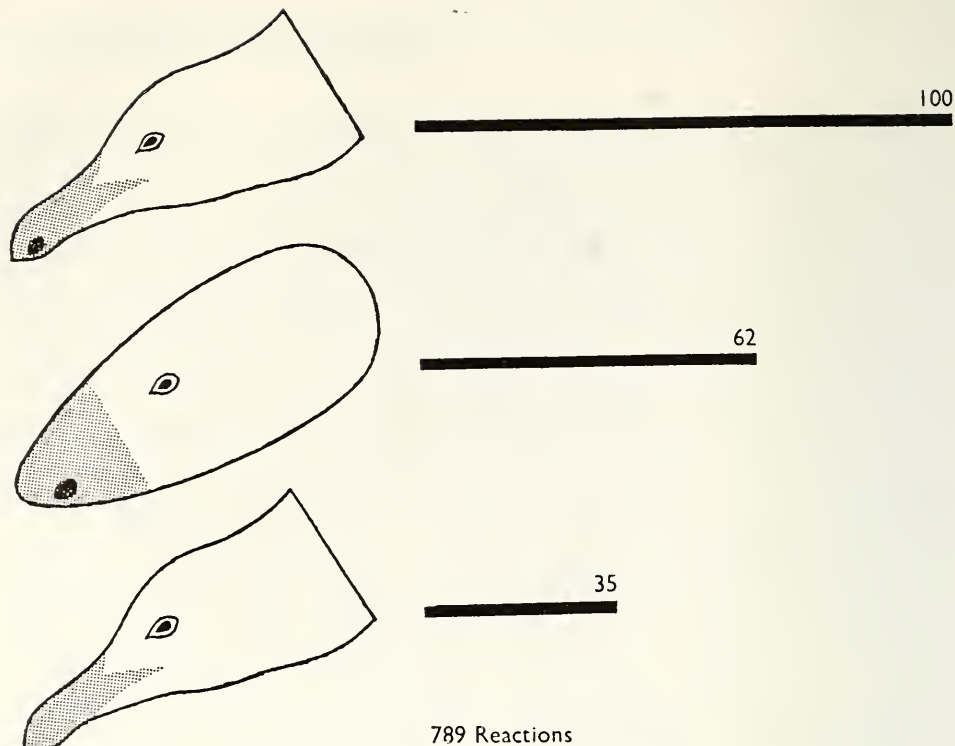
100

62

35

789 Reactions

FIGURE 9—A KEY STIMULUS (From Tinbergen and Perdeck, 1950, Fig. 9)
Some results of Tinbergen and Perdeck's experiments on the stimuli releasing food-begging in the herring gull chick. They presented the chick (in succession) with various models. Every time a model was presented, the experimenters gave an imitation of the call normally given by a parent-bird when about to feed the chicks. The model was then held in front of the chick for thirty seconds, and the number of reactions counted (that is, the number of times the chick pecked at the model). Tests of this kind were repeated a large number of times, and the experimenters were able to add up and compare the number of reactions released by different kinds of model.

On the left side of the figure, three flat cardboard models are shown. The top one was shaped and coloured to be very like the head of a parent bird, including the red patch on the end of the bill (shown as dark in this illustration). The model at the bottom was similar to this in every way, except for the absence of a red patch. The model in the centre had the patch, but was made in a simple egg-shape, quite unlike the head of a gull.

The bars on the right side of the figure indicate the relative number of reactions released by the different models. The numbers (which are printed at the end of each bar) were expressed as percentages of the number released by the top model, which is therefore scored as 100. The absolute number of reactions obtained in the whole experiment is printed at the bottom of the figure.

The centre model (with patch) released substantially more reactions than the bottom one (without patch, but otherwise much more like a gull's head). The red patch is thus shown to be a key stimulus (though not the only one, for the centre model was still not as effective as the top one).

100

126
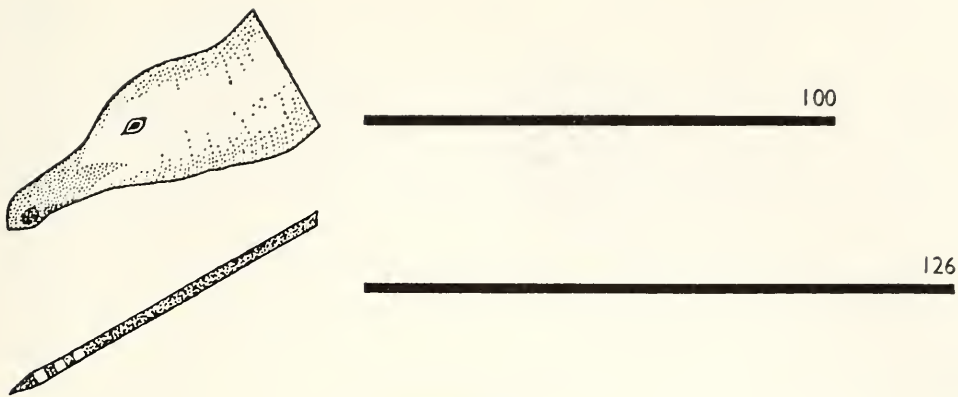
944 Reactions

FIGURE 10—SUPERNORMAL VERSUS HIGH FIDELITY
(From Tinbergen and Perdeck, 1950, Fig. 33)
Another experiment of Tinbergen and Perdeck, with the same conventions as in Fig. 9.

The upper model is a three-dimensional, accurately shaped and coloured model of the parent-gull's head and beak, a model of very high fidelity. The lower model is a thin red rod, with three sharply-edged white bands at its tip. Though extremely unlike a gull's head, it does present the three key stimuli of redness, colour contrast and elongation; in these respects it is superior to the actual head of a real parent-gull, and may be called supernormal.

The result shows that a supernormal model can release more reactions than one of very high fidelity.

but does have, in supernormal dosage, the properties of contrast, redness and thinness. It thus produces more reactions than the very hi-fi, three-dimensional, accurately shaped and coloured model of the actual object (the parent gull's head and beak).

Familiarized releasing stimuli are too complicated to be transmitted genetically (cf. p. 49). Key stimuli are often innate, but the experiments of Diebschlag showed that they may also arise by conditioning. Thus he was able to make a supernormal model of the entrance to his spiral maze (p. 66), as shown in *Fig.* 11. Two pieces of paper-covered mesh 10 cms. long were set up near the spiral in the form of an entrance (*Fig.* 11*a, b*). The tracks of the pigeon show that the imitation was even more attractive than the original. If the spiral itself was removed (*Fig.* 11*c*), and the food-post placed as shown, the birds were caught in another mood trap, being compelled to go to and fro between the post and the fake entrance. To maintain their releasing effect, the pieces of mesh
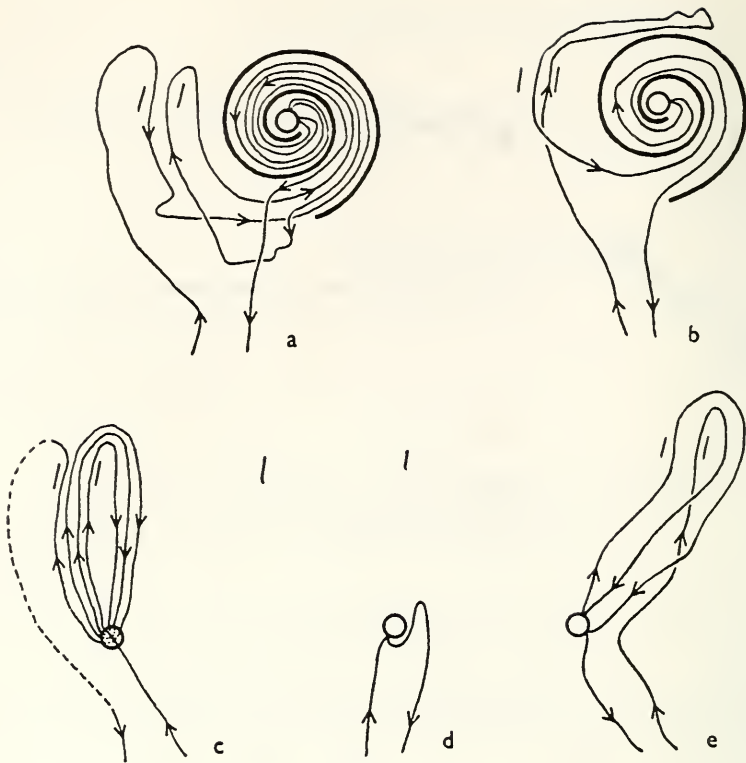
FIGURE 11—DIEBSCHLAG'S PIGEONS
THE SUPERNORMAL ENTRANCE (From Diebschlag, 1941, Fig. 11)
The conventions are as in Figs. 6 (p. 65) and 7 (p. 67).
   (a) and (b): tracks shown in the presence of food-post, screen and entrance model.
   (c), (d) and (e): tracks shown in the presence of food-post and entrance model alone.
   (d): the two pieces of mesh making up the model are moved too far apart: they are now ignored.
   (e): they are moved close together again.
   Over the dashed part of the track in (c), the pigeon was *flying*, as in Fig. 8b (p. 69).

had to be less than 50 cms. apart. *Figs.* 11*d* and *e* show the effects of putting them further apart than this, and moving them together again. Further illustration comes from Diebschlag's first side-choice experiments (p. 63). He found that the pigeons had become familiar with the (+) post, but recognized the (—) post by key stimuli. One pigeon was presented with two black posts. After sixteen runs it learned unerringly to choose the left-hand one. The right-hand one could now be replaced with a black cardboard disc or a black book, on which stood a dish wrapped in black, without disturbing the pigeon's choice. But if the left-hand post was

replaced by such a model, the pigeon was upset, and left both posts severely alone.

Under what circumstances do animals use key stimuli as opposed to familiarization? The following seems a reasonable hypothesis, which fits Diebschlag's results (Chance and Russell, 1959). Familiarity is employed when it is specially important *not* to react to the wrong object. Key stimulus mechanisms are used when it is specially important not to lose a chance of reacting to the right object, while reactions to the wrong object are of minor disadvantage. Key stimuli are therefore likely to be used in emergency drives (as in the case of the (—) post), and also in reaction stages, where a mistaken reaction will be corrected at the next step (just as in the frog case, p. 42). For it becomes increasingly unlikely at every step that the wrong object in nature will continue to present a correct sequence of key stimuli (cf. Morris, 1956). In the case of emergency drives, running away from something harmless is a less disastrous mistake than failing to run away from something really dangerous. All this, of course, only underlines the automatic and rough-and-ready nature of the instinct system. Key stimulus systems will only distinguish between a few different situations, and represent the opposite extreme to intelligent abstraction.

Why do we speak of a *releasing* mechanism? Here we recur to the compulsiveness of instinctive reactions, well illustrated in the pigeons. The tendency for a reaction to occur depends on two sets of factors: the existing mood of the animal (that is, the pattern of activity of its drives—*Fig.* 4, p. 53) and the situation in the external environment. If we consider one particular reaction, the relevant factors are the state of its drive at the moment when we present an object, and the releasing stimulus value of this object. The two together determine the final level of drive, which is in turn reflected in the frequency with which the reaction actually occurs (for details, cf. Russell *et al.*, 1954). It is normally very difficult to specify an animal's mood just before we test it, but Baerends and his associates (1955) have succeeded in doing just this, in a study of mating behaviour in the male guppy (a little aquarist's fish). This fish makes no secret of his moods. They are translated accurately (with a short time lag) into detailed and elaborate colour markings on his surface, altered by the movement of pigment in small specialized skin cells, 'as if', in T. S. Eliot's words, 'a magic lantern threw the nerves in patterns on a screen'. By a series of tests, the Dutch workers were able to calibrate the colour markings; that is, they could arrange the different

patterns in order of rank, and even spread them out accurately on a scale, as measurements of the mating drive. They had also found that mating behaviour was more readily released the bigger the female presented. So it was possible to titrate (as the chemists say) one set of factors against the other, by presenting differently sized females to males in different moods. They then studied the occurrence of three different reactions, which seemed to express three different levels of the mating drive. The result was the set of curves shown in *Fig.* 12.

The Dutch workers themselves are cautious about the interpretation of these curves, which nevertheless strongly suggest a relationship roughly of the form of a product (Russell *et al.*, 1954). That is, the readiness of each reaction to occur depends on the product of the existing state of drive and the effectiveness of the external stimulus. This leads us directly to the concept of 'release'. For a product relation means this: if the existing drive state is below a certain level, the external stimulus must be very powerful indeed to release the reaction. Conversely, even if the internal drive is very high, a sufficient amount of external stimulus is also necessary. (For, to take the extreme case, the largest number, when *multiplied* by zero, becomes zero.) Incidentally, it is worth noting that nervous mechanisms are already known which could form a basis for just this sort of relationship (Russell, in press *a*). We can therefore think picturesquely of an external stimulus *releasing* a reaction when it is suddenly supplied to an animal with high internal drive. As the release occurs, the reaction is performed with a degree of compulsiveness which depends on the level of the internal drive. (Conversely, a sex hormone can be shown to take a measurable time to act on the central nervous system and produce a mood dominated by the mating drive (Russell, 1952). When a male clawed frog has been for some time in the external situation which releases clasping (i.e., in the presence of another frog), the hormone can often literally be seen to take effect, as the male suddenly 'notices' the female and springs into the clasp position.) Where a releasing mechanism is operated by several key stimuli, fewer of these may be necessary when the internal drive is high, so that the reaction becomes less and less specific as the drive rises, finally going off in reaction to external inputs having very little in common with the natural stimulus object. The higher the internal drive, the greater the likelihood of mistakes, even in nature.

We saw in the pigeon how an appetite reaction (obtaining food) came to be split into stages, each of which ended with the encounter of
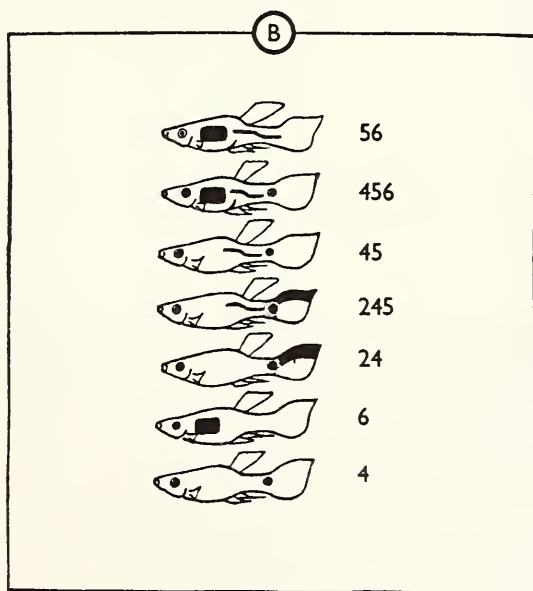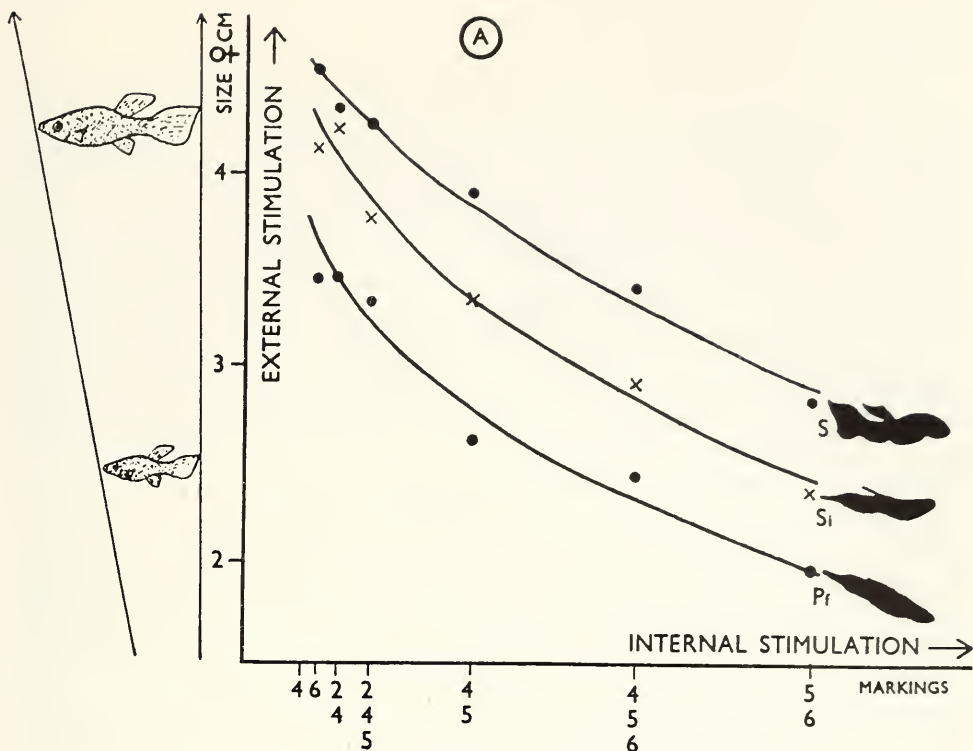
FIGURE 12—DRIVE, STIMULUS AND REACTION IN THE GUPPY
(From Baerends et al., 1955, Fig. 24; modified)

The experiments of Baerends and his associates on mating behaviour in the male guppy.

(B) This diagram shows seven different colour patterns shown by the male guppy. Various spots, patches and lines have been allotted numbers, and each total pattern

can then be specified by a number—56,456, etc.—showing which patches of colour appear when the pattern is shown. The patterns are arranged, from above downwards, in a definite order. It was shown by earlier experiments that pattern 56 corresponded to a very high level of mating drive (independently measured by behavioural reactions), pattern 456 to a slightly less high level, and so on down the series.

(A) This figure shows the relation between the level of mating drive in the male and the size of the female presented to him. Reading upwards, we have larger and larger females (measured in centimetres); reading along to the right, we have the colour patterns, as indications of the level of the male's mating drive. (From the earlier experiments it was possible not only to arrange these patterns in order, but to space them out properly: thus there is less difference in drive level between patterns 6 and 24 than between patterns 45 and 456, and so on. Reading along to the right, therefore, we have an accurate indication of actual level of mating drive.)

The points and curves show how big a female had to be to release a reaction in a male showing a given colour pattern. This is shown for three different mating postures (S, Si and Pf, pictured on the right). Thus the reaction called Pf could only be obtained from a male showing colour pattern 6 if he was presented with a female longer than about 3·5 centimetres; it could be released in a male showing colour pattern 56 by a female less than 2 centimetres long. The reactions corresponded to three different levels of mating activity: it is clear that at any given level of mating drive the reaction called S (for instance) needed a larger female to release it than the one called Pf.

In general the figure shows that *a small female will release a reaction if the male's mating drive is high, while only a large female will release a reaction if his drive is low.* In other words, the higher the level of the drive, the less external stimulation is necessary, and vice versa. Moreover the shape of the curves strongly suggests that:

If the drive is very low there will be no reaction even if the external stimulus is very powerful, while if the external stimulus is very slight there will be no reaction even if the drive is very high. In other words, drive and external stimulus are not added together, but *multiplied.*

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a stimulus which released the next. In each such sub-mood, only a limited range of the animal's actual sensory inputs can be 'noticed' by the animal. Thus the hunting water beetle, Dytiscus, has excellent eyes of the insect pattern, and can be trained to react to visual stimuli. But when it is hunting its prey (e.g., tadpoles) the hunting leap is released solely by chemical and touch stimuli. If moving prey are presented in a glass tube, nothing happens; but if meat extract is trickled into the water, the beetle is compelled to hunt and catch every solid object it touches (Tinbergen, 1951).* It often happens that the real goal of an appetite (e.g. actual procurement and eating of food) can be attained in nature in more than one way. With their very rigid sequences of reactions, instinctive mechanisms seem quite unable to cope with such opportunities, for obviously

* See Appendix 8: Digger-Wasp Sub-Moods.

opportunism is the last thing we can expect from them. Some simulation of this, however, is achieved in many animals by a hierarchical structure of instinctive mechanisms. Tinbergen (1950) illustrates this by an account of the hunting behaviour of the peregrine falcon. When its hunting drive is high, the falcon roams around a large area, up to ten or more miles in diameter. It flies around this partly at random, partly concentrating on areas within the region where success has been achieved in the past. But the next stage in its hunting may take several forms, according to the releasing stimuli it first encounters. 'It may take a starling, a lapwing or a teal out of a flock, it may pick up a weak gull or lapwing from the water, it may even take a small mammal from the ground.' But in each of these eventualities, the reaction still proceeds in stages. Thus, if a flock of teal appears, the falcon will not try to catch one. Instead, it makes sham attacks until one of the teals straggles and becomes isolated. 'This stimulates the falcon to its final swoop . . . and only if the swoop brings it into a favourable position will the falcon catch the prey.' (Other, more elaborate examples of hierarchical arrangements are given by Räber—turkeys—1948; Hinde—tits—1952, 1953a; Vowles—ants—1955.) Along any one line of this network of stages the reactions become more and more simple and stereotyped. The initial behaviour of the falcon is restricted only in a very general way—'search this area'. (Such a goal will be implemented by complex assemblies of feedback networks— p. 19.) Later, the behaviour becomes more and more strictly and closely specified. The hierarchical arrangement in strict form is only one actual arrangement found, and if a wide stretch of behaviour is examined (as Vowles has done in his study of ant foraging behaviour) we find these relatively unrestricted searchings interspersed with quite rigidly patterned reactions of a simple kind. Such very closely specified, stereotyped movements are called *fixed patterns*. They are specially common in social behaviour, for a movement performed with perfect regularity in exactly the same way whenever it occurs can best serve as a signal for another animal (cf. Morris, 1957).

In each whole instinct system, the objective goal is action which will bring about the desired changes in the animal's internal conditions, that is, satisfaction of a need (e.g., presence of nutrients in the blood). So far as the animal's behaviour-control system is concerned, the goal is the particular pattern of input which signals this (e.g., that resulting from swallowing). (Cf. p. 55.) Such an input cuts off the drive in question, and permits some other drive to become dominant. An action which

provides such a cut-off input is called *consummatory*. Often it is a fixed motor pattern. When a drive and its activities are split into sub-drives and reaction stages, these can be classified as appetitive or consummatory, according to their effect on the major drive concerned. Van Iersel, (1953), in his study of the male three-spined stickleback, examined the mating drive of these fish, which leads to the consummatory situation of fertilization of the eggs laid by the female in the nest previously constructed by the male. Van Iersel measured the mating drive as a whole by the intensity of performance of certain reaction stages earlier in the sequence. He studied the effect of permitting the male to fertilize eggs (which were at once removed to control any external effects due to their presence). Other males were permitted to court females over long periods, but prevented from reaching the fertilization stage. Van Iersel found that performance of fertilization considerably reduces the frequency of courtship movements; the effect increased, and recovery from it was retarded progressively longer, the more fertilizations were performed. Fertilization is thus consummatory: the inputs resulting from its performance (probably internal sensations) act to cut off the mating drive as a whole. He also found that performance of a considerable amount of courtship behaviour was self-reducing in the long run, but this effect was far less pronounced. A hundred and twenty minutes of courtship produced about the same drop (but far more rapid recovery from it) as five fertilizations with about five minutes of courtship preceding each. Such behaviour is therefore not markedly consummatory.

It sometimes happens that the splitting process we have considered goes still further, and a single appetite mechanism is split into two (or more), each with its own drive *and cut-off input*. What was appetitive now becomes consummatory. What was a means has become an end in itself. This further differentiation of behaviour is well illustrated in the context of feeding. Predatory animals obtain food *via* a chain of reactions which begin with some form of hunting. So far we may consider this as a stage in the execution of feeding. But in some species hunting acquires a drive of its own, and is not cut off when the main goal (i.e., swallowing food) is attained. Captive owls continue to catch prey even after they are satiated with food (Räber, 1949). Tits in nature often look for food under bark, tearing off strips of this in the search. But, in at least one species of tit, the movements concerned have acquired the rank of a separate instinctive mechanism. As a result, these birds have acquired the habit of 'paper-tearing'. As Thurber might have put it (but actually Hinde,

1953*a*), 'the birds simply seek out paper and tear it'. The birds are ready to enter houses on this (from our point of view) delinquent errand, even when they are not at all hungry. Nor do they find anything to eat under the paper (Logan-Home, 1953; Hinde, 1953*a*, 1953*c*). No doubt the paper is a supernormal stimulus for the hunting mechanism, but the latter has become an end in its own right. When a set of activities, formerly controlled by one major drive, and cut off when this is cut off, acquire a separate control mechanism of their own, we speak of *emancipation*. In nature, the relative scarcity or abundance of prey are such that the new pair of drives (hunting and eating) work together in a rough but usually effective way in the satisfaction of the actual need. But the slightest disturbance of this balance, as in zoos, will lead to biologically useless behaviour. In cats, killing and eating have become so completely separated in this way that their drives may actually *compete*. Leyhausen (1956) studied the behaviour of cats some of which had just been satiated with meat (which they had not killed themselves) and some of which were hungry. As fast as the cats killed mice, he gave them new ones. In these conditions, a very hungry cat will finish eating its first mouse before catching and killing the second. A completely satiated cat will leave its first mouse uneaten and hasten to catch and kill the second. A moderately hungry cat will finish its first mouse, but while doing so it will follow the movements of the second mouse with its eyes, make little tentative movements towards it, and eat its meal in a hurry: these are all symptoms of a conflict mood (p. 86).

When consummatory or cut-off inputs are denied to an animal with a high level of a given drive, the corresponding behaviour will go on and on. The male platyfish fertilizes internally; it transfers sperm into the reproductive aperture of the female by means of a sort of tube, formed by the modification of one of its fins, and called the gonopodium. This organ ends in a hook, which holds the two animals together long enough for sperm transfer to take place. If this hook is cut off, fertilization is prevented. Clark, Aronson and Gordon (1954) counted the number of thrusts of the gonopodium at the female made by males before and after this amputation. Before operation, there were about the same number of thrusts in two groups of six males each (454 and 505 respectively). After one group were operated on, they performed 2,850 thrusts, as against 1,186 made by the still intact group. Failure to consummate, therefore, leads to persistent activity.

Within any one instinctive mechanism, then, there are a number of

activities of successive stages, each released by a stimulus found as a result of the previous stage. The last act, the consummatory one, produces inputs which cut off the whole system and permit the rise of some other drive. Setting aside the hierarchical or web-like structure of some such mechanisms (p. 79), and the special case of emancipation, we can represent the whole apparatus by the simplest instance, a linear sequence of activities. The picture we have built up is illustrated in diagrammatic form in *Fig.* 13. This is not intended to be a 'wiring diagram' of events in the brain, but just a formal statement of the functioning of the mechanism. (For more elaborate models, cf. Tinbergen, 1950, 1951; Hayes *et al.*, 1953.) It must occasionally happen in nature that persistent activity of one drive at one stage fails to secure the presence of the releasing stimuli for the next stage. Or, more generally, the objective actually required for satisfaction of the need may be unobtainable, so that both successive releasing stimuli and cut-off inputs are missing. The compulsive nature of instinctive mechanisms would then result in the activity of a particular stage going on indefinitely, to the detriment of other needs for which satisfaction might be potentially available. This is avoided by an ingenious mechanism, roughly comparable to the blowing of a fuse. If the product relationship between internal and external factors were absolute (p. 76), no amount of internal drive would ever release the next stage without some specific external input. But in fact when a drive is very high, even in the absence of anything remotely resembling the releasing stimulus required, the next stage of activity is sometimes fired off. This is called *vacuum activity*, because the reaction goes off, as it were, in a vacuum.* It was discovered by Lorenz (1937), who first started the systematic study of instinctive mechanisms. But the shunting process (as electricians might call it) does not necessarily stop when the next stage activity is performed. The same process may now recur, and the successive step reactions may go off one after another, as far as the consummatory act. By a similar shunt, the cut-off input may now be simulated in the brain, and the whole drive can now be cut off, permitting some other drive to rise, without the slightest trace of real need satisfaction. It was later postulated that in some circumstances the cut-off input might be simulated without any preliminary vacuum activity; such a process was described as *vacuum inactivity* (Hayes *et al.*, 1953). By analogy with some physiological experiments (Von Holst and Mittelstaedt, 1950) and neurosurgical observations (Penfield and Rasmussen,

* See Appendix 9: Vacuum Activities in Acquired Instinctive Mechanisms.

FIGURE 13—A LINEAR INSTINCTIVE SEQUENCE

(After Hayes et al., 1953, Fig. 4; greatly simplified)

This diagram is not intended as a circuit diagram of brain mechanism, but as a graphic method of visualizing the course of events in a linear instinctive sequence of reactions. The figure is divided by a central vertical line into events in the central nervous system and events outside it.

DM = Drive Mechanism

R1, R2 etc. = Instinctive Control Mechanisms

AB1, AB2 etc. = Mainly appetitive behaviour

CA = Consummatory Act

K2, K3 etc. = Key Stimulus inputs

C = Cut-off input

⟵╂╂╂╂ = Input ╱╱╱╱⟩ = Output

When the drive in question takes over control of behaviour, the first appetitive behaviour is initiated. As a result of this appetitive behaviour on the animal's part, events take place in the environment which lead to the key stimulus inputs for the second appetitive behaviour, which now begins, the first being cut off. This leads in turn to K3 inputs and the release of AB3, and that in turn to the arrival of K4 inputs and the release of the consummatory act. The final outcome is a cut-off input which reduces the level of the drive as a whole. (The number of mechanisms and reaction stages, is, of course, quite arbitrary.)

The appetitive behavioural outputs may have relatively slight effects on the level of drive as a whole, represented by the dotted lines (cf. the work of Van Iersel, p. 80). The figure naturally omits many complexities; for instance the specification of the outputs may vary from an absolutely fixed pattern to a relatively broad goal, attained by mechanisms with feedback loops of their own (cf. p. 79). It does, however, show the general pattern of events, and may be applied to the observations of Diebschlag (pp. 64–70).
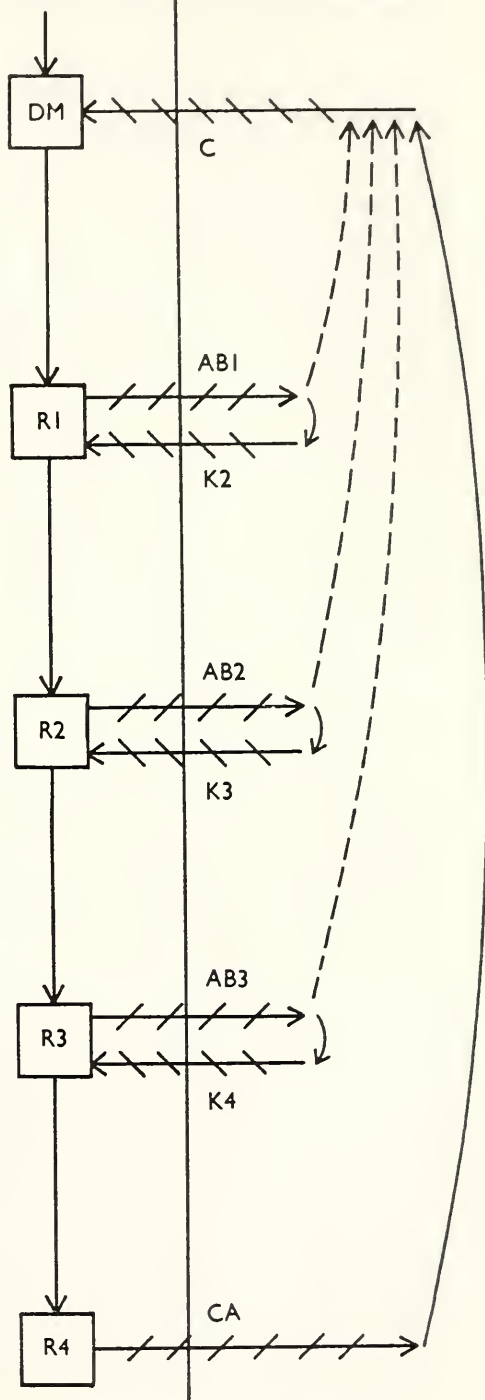
1952), it seems that during both vacuum activity and vacuum inactivity processes occur in the brain which precisely simulate the effects of actual external releasing stimulus and cut-off inputs respectively, and these may legitimately be described as *hallucinations*. That associated with the cut-off input may be called an *hallucination of gratification*. The signalling process in the brain may be described as the transmission of *false* information (Hayes *et al.*, 1953; cf. also McCulloch, 1951), for gratification of the need has not really occurred. The resulting overt picture naturally conveys the impression that the animal is having hallucinations, which indeed, in a quite valid sense, it is. Many vacuum activities have been described by now, but the most striking is the original sequence observed by Lorenz himself (1937) in a tame starling. The young bird was in a room devoid of insects to be hunted. He repeatedly showed by his behaviour that he had 'perceived' his flying prey, the releasing stimulus for the sequence of hunting and feeding. 'He went right through a movement with his eyes and head [we translate] as if he were following with his gaze an insect flying away from him; he became tense; he flew off, snapped and returned to his post, where he carried out complete rolling movements with his beak [to get the imaginary insect into position for swallowing] . . . then he made several swallowing movements, whereupon his close-packed plumage loosened somewhat, and in several cases the shivering reflex ensued, exactly as after normal satiation.' Curiously enough, in 1950, a psychiatrist (at that time ignorant of Lorenz's work) used the identical German term *Leerlaufreaktion* (translated as vacuum activity) to describe the behaviour of a human patient with vivid hallucinations, upon which she acted (Ploog, 1953).

It is clear by now that the instinct mechanisms operate on a hit-or-miss basis, and cannot even in nature work with the accuracy and reliability of intelligence. Vacuum activity, evolved to overcome the compulsive nature of instinctive reactions, is itself the best illustration of this compulsiveness—this inexorable impulse to perform some action utterly without biological advantage. Chance (1957*a*) has introduced the notion of biological *efficiency*. By the efficiency of the mechanism for a particular reaction, he means the percentage frequency of successful occurrence of the action out of the total frequency with which it occurs. (A successful occurrence means one which leads to real need satisfaction.) Some reactions require less efficiency than others, and unsuccessful occurrences may be the result of some device (such as vacuum activity) made necessary by the nature of the instinctive mechanisms themselves.

Sleep is an interesting case. Most animals must sleep periodically, for many physiological reasons. Within an instinctive framework, it becomes important to ensure that during sleep other drives do not become too active, or lead to the performance of activities which would involve awakening. This may be achieved by vacuum inactivity. When some drive other than sleep becomes active, the animal must hallucinate the rapid successive arrival (without action on his part) of a sequence of releasing stimuli, and finally of the cut-off input. This is just what we mean by a *dream* (though dreams in *man* have other aspects). Some slight movements may not interfere with sleep and may be tolerated as vacuum activities in the course of a dream. Hediger (1955) cites some observations by earlier authors on dreams in dogs. One dog was observed, while sleeping, to bark in a high pitch, twitch its legs, and kick out. This always occurred after the dog had been taken for a walk in the woods. If the dog was wakened, it showed no desire to go out, showing that a hallucination of the cut-off input had switched off the drive. The last step, or consummatory act, of mating often occurs as a vacuum activity in sleep. In male humans, of course, this is the 'wet dream' or 'nocturnal emission'. (One of our female patients once made, in a pointed context, the bitter Freudian slip 'nocturnal omissions'.) Sleeping male shrews have been observed, while lying asleep, to display an erection. The animals then stir restlessly and twitch their hind-legs. A few seconds later, a few small thrusts are made, followed by one deep thrust accompanied by rigid extension of the hind-legs, as in actual copulation (Pearson, 1944). Apparently there was no emission in these animals, but one sleeping tom cat has been observed to have an erection, execute pelvic movements and emit sperm (Aronson, 1949).

Conflict, Compromise, Displacement and Redirection

We must now consider the relationships between whole instinct mechanisms, and the competitive interplay which determines their alternate control of the motor system. So far we have mainly considered simple moods (*Fig.* 4, p. 53), each dominated by one drive. A succession of routine or reproductive moods normally occurs when the one in control achieves its cut-off input, and resigns in favour of the most active other drive; the emergency drives, however, may break in upon any other type of activity and take emergency control, as when a predator or rival

is sighted. The normal transition from mating to parental behaviour in the male three-spined stickleback has been worked out by Van Iersel (1953). In this species, the male alone takes care of the fertilized eggs, protecting them and fanning them to dissipate waste-products. The inputs resulting from the act of fertilization depress the mating drive (p. 80), while the presence of the eggs releases the parental drive. So the transition takes place in a smooth way, the balance shifting as the number of fertilizations and clutches increases. But it sometimes happens in nature that two or more drives are simultaneously highly active, giving rise to a *conflict* mood (Fig. 4, p. 53). This is specially liable to happen when moderate levels of emergency drives compete with high levels of reproductive ones, or when emergency drives such as attack and flight compete with each other. From all we have said of instinctive mechanisms, it is clear that such a conflict might well result in total paralysis or useless oscillation, were not some provision made for its occurrence. There are in fact several such special provisions.

The several drives can be envisaged as competing for control of the animal's motor system. (Some of the circumstances of such a competition have been studied even in spinal animals—those in which the brain has been removed or severed from the spinal cord.) Sometimes we can see the original drive remain in control for some time while the rival drive is rising, but still unable to take over the motor system. Suddenly the balance is tipped, and the new drive comes into play. (Something like this probably happened in the pigeons, when their flight drive took over in the maze—p. 69.) At the moment of transition, the movements of the new drive are often executed with special vigour and intensity, indicating an 'accumulation' that has taken place while the new drive was still unable to secure control of the motor system. This is called contrast or rebound, and is becoming well understood in physiological terms (Lissmann, 1950: Granit, 1956). We can now see, in terms of more than one drive, another way in which prolonged instinctive stalemates (as in the pigeon case) can be overcome without intelligence.

Of special interest, however, is the case where two drives are in perfect balance for a more than momentary period—the true conflict mood. Here several different issues are possible. Before considering them, we must mention one point not hitherto discussed—the question of *intensity*. (For less simplified accounts, cf. Russell *et al.*, 1954; Morris, 1957.) The level of a drive may determine not only the frequency with which a given act is performed, but also its intensity; for a given instinctive act

may take several forms. At the lowest intensity, what is called an *intention movement* may appear. These movements have been most fully reviewed and discussed by Daanje (1950), who pointed out that, since most instinctive acts involve locomotion, locomotor intention movements are specially frequent. As an instance, a bird jumping to a higher branch behaves rather like a spring which is first coiled and then released, as shown in *Fig.* 14—head, legs, wings and tail all participate in the two-stage movement. But it is quite common to see birds perform either the coiling or the uncoiling movement or both, with some or all their extremities, without actually leaving their perch, as shown for the Little Owl in *Fig.* 15A *a* and *b*. Vultures about to fly off a perch coil their heads under, instead of over the body, and this coiling can also be seen as an intention movement without developing into actual flight (*Fig.* 15B.) A large part of behaviour study consists in the observation and interpretation of intention movements, which form the chief clues to the mood of any animal less 'transparent' than the guppy (p. 75). The interpretation is usually done by the laborious but convincing method of scoring the relative number of times particular intention movements are followed by full-scale performance of escape, attack, etc. (Daanje, 1950; Tinbergen, 1952*a*; Moynihan, 1955). Thus it becomes possible to assess very accurately the mood of an animal, and hence to predict its subsequent behaviour. Lorenz (1950) relates how one of his colleagues could give a running commentary on the behaviour of his animals exactly as if on a film, sometimes running a little in advance of what was actually happening. Such accurate integration of patterns of intention movements is (in the observer) a process of abstraction, and can be one expression of intelligence (cf. also Russell, 1956).

Now an intention movement may consist of only part of the fully developed one—e.g., in the take-off reaction just considered, the head movement alone. Some degree of compromise is therefore possible between two competing drives when neither is very high. Such compromises are called ambivalent movements or postures (and may also occur in spinal animals). Fishes in conflict between attack and escape may rush backwards and forwards rapidly, performing the successive intention movements of attack and escape alternately in time. This is ambivalent movement. Or they may divide their muscle groups into spheres of influence between the rival drives, and perform intention escape and attack simultaneously. This is ambivalent posture. They beat backwards with their front fins and forwards with their tails at the same time,
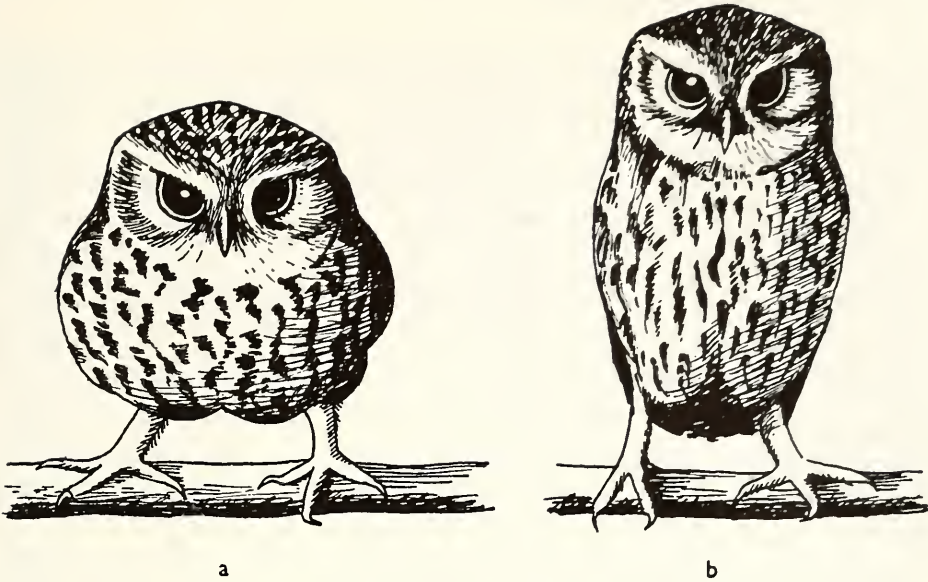
FIGURE 14—A BIRD JUMPS (From Daanje, 1950, Fig. 1)
Two phases in the action of a bird jumping off one branch to a higher one. In the first phase (a), the bird is coiled up like a spring. In the second phase (b), it uncoils. Head, legs, wings and tail all contribute to the form of each phase.

throwing their bodies into curves while remaining on the same spot, in a manner reminiscent of Alice and the Red Queen. Or the posture shown may be a simple resultant of the two drives, as when a fish turns side-on to an enemy, the exact compromise between facing towards it and away (Morris, 1956).

It may happen, however, that both drives are very high, and/or that the main muscles for the acts they control are the same. This is spectacularly true in the case of the male clawed frog (p. 42). The two competing mechanisms—those for clasping and unclasping—have exactly opposite effects on the same set of muscles. In the experimental conditions we have described (p. 43), and probably in nature at the start of the rather long breeding season when few ovulating females are available, there are times when the two drives are exactly in balance. At just the times when we may suppose this to be true, there occurs a movement quite different from either clasping or unclasping, namely a flicking movement of the arms, sometimes accompanied by a movement of the hind-legs which has been called 'high-kicking'. These movements are part of the normal feeding behaviour of the species, being used in several ways, for instance in conveying particles of food to the mouth, and (high-kicking) in raking large prey with the claws on the hind-toes from which the animal has its name. In the conflict situation, there is no normal stimulus for feeding behaviour present, nor do the movements
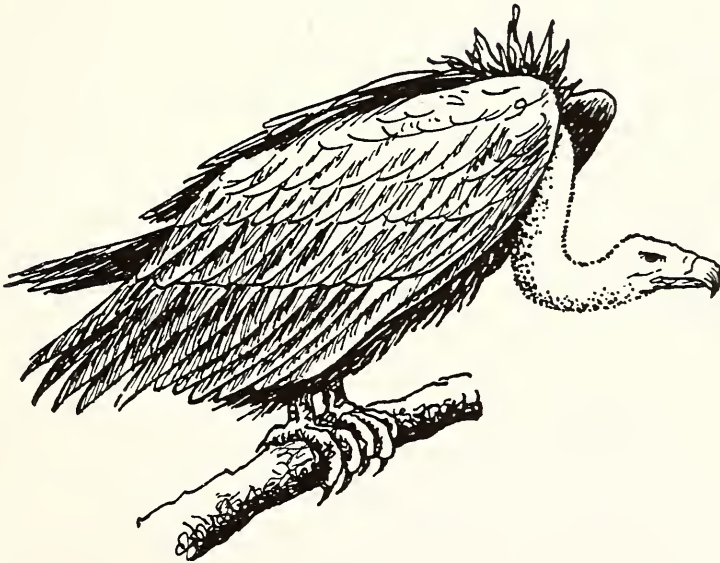
(A)

a   b

(B)

FIGURE 15—INTENTION MOVEMENTS AND POSTURES
(From Daanje, 1950, Figs. 4 and 9)

These are pictures of intention movements or postures in birds, and should be compared with Fig .14.

A. This shows a frightened little owl in (a) the coiled-up and (b) the uncoiled phase of jumping from its perch: the bird may enter either of these postures and maintain it for some time when alarmed, without actually taking off; the postures may alternate.

B. The coiled-up intention posture in the Griffon vulture, similar to that of other birds (cf. Fig. 14 (a)) except that the head is tucked in below instead of above the body.

serve any obvious function (Russell, 1954). Such a movement, occurring when two drives are in exact balance at a high level, but normally 'belonging' to a third drive, is called a *displacement activity*. Like vacuum activity, it is a biologically inefficient performance (p. 84) made necessary by the nature of instinctive mechanisms. In the clawed frog case, the displacement activities chiefly occur at the beginning and end of a spell of clasping. By the time they have been executed, one of the rival drives has ousted the other from control of the motor system. (Displacement activities were discovered independently by Tinbergen (1940) and Kortlandt (1940), and have been chiefly studied by the former and his associates—Tinbergen, 1951, 1952a; Tinbergen and Van Iersel, 1947; Bastock *et al.*, 1953. Their nervous mechanism is still in dispute, but need not concern us here—cf. Guiton, 1956; Van Iersel and Bol, 1958.)

Displacement activities occur in conflict moods, but they are drawn from the existing behavioural repertoire of the animal. It is an interesting question whether there are any acts in animals *specific* to conflict situations; it is possible these have been developed in the primates. Chance (in press) has described calls in macaque monkeys which appear *only* to occur when flight or attack drives are in conflict with appetites. The monkeys then seem able to reduce the level of flight or attack drive by uttering one of two special calls: they give the subjective impression of 'letting off steam'. These calls are not uttered if actual attack or flight occurs. Chance calls these *shedding* activities, because they enable the animals to shed components of their moods without giving them full expression. It is of interest that the actual examples are vocal ones, for such a mechanism may therefore have been playing a part at the dawn of human speech.

Besides ambivalent, displacement and shedding activities, there is one further conflict expression of great importance (as we shall see) for human behaviour. This was discovered by Moynihan, and called by him *redirection activity* (Bastock *et al.*, 1953; Moynihan, 1953, 1955). For instance, when a prairie falcon is disturbed at the nest by a human intruder it often begins to swoop at him. But within a few feet of the human, the falcon will suddenly swerve aside, 'undoubtedly due to increase of escape drive as the birds get closer to their opponent' (Bastock *et al.*, 1953). At this point, the falcon will often attack other birds that happen to pass by, such as barn owls or ravens. This is not displacement, since the drive actually expressed is one of the two in conflict (attack). It is as if the falcon searches for an object which will release attack without also releasing escape. (If the falcon were as disingenuous as a human can be, he would

doubtless exclaim: 'Thou wretched, rash, intruding fool, farewell!
I took thee for thy better'—cf. p. 404.) In other instances, the search for
a substitute victim may be persistent, and becomes reminiscent of the
search of the pigeon for a conflict-free situation, discussed on p. 66.
The substitute fulfils exactly the role of the whipping-boy used in
medieval courts, who was beaten every time a young prince or princess
misbehaved. Unlucky the whipping-bird which blunders into such a
situation!

In the case of the whipping-boy, the disciplinarians intended to produce
an effect on the young royal onlooker. There are cases in birds where an
act which is partly displacement and partly redirection may serve as a
strong hint to the party that provoked the conflict. In certain conditions,
one herring gull may react to another by high levels of both attack and
flight drives. In these circumstances, it may neither attack nor flee, but
pull at bunches of grass on the ground, uproot them, and throw them
over its shoulder. This sequence of movements is just that normally
shown in the collection of materials for a nest. So far, then, we can regard
it as a displacement activity. But in the conflict situations the bird often
chooses strongly rooted plants and pulls at them savagely. From this,
and certain details of the movements and accompanying postures, it can
be inferred that the bird is *also* redirecting attack from its opponent to the
grass. It is also known that this performance is a form of threat display,
which is reacted to by the other bird as a hostile demonstration (Tinbergen
1951, 1952*a*; Bastock *et al.*, 1953). Grass-pulling is shown in *Fig. 16*.

Social Instinctive Interaction

With this last example, we are launched on the subject of social in-
stinctive interaction between animals. Since this is often (quite properly)
referred to as a form of communication (e.g., Tinbergen, 1953*a*), it is
important to make clear at once that instinctive interaction differs pro-
foundly from that communication which is the social counterpart of
intelligence; we shall mean the latter in this book, whenever we speak of
'communication'.* What social instinctive interaction is like is not hard
to infer from what has been said of instinctive mechanisms in the in-
dividual. The need for social interaction arises in an individual animal
when it is in some degree of a conflict in a social situation (and it is in
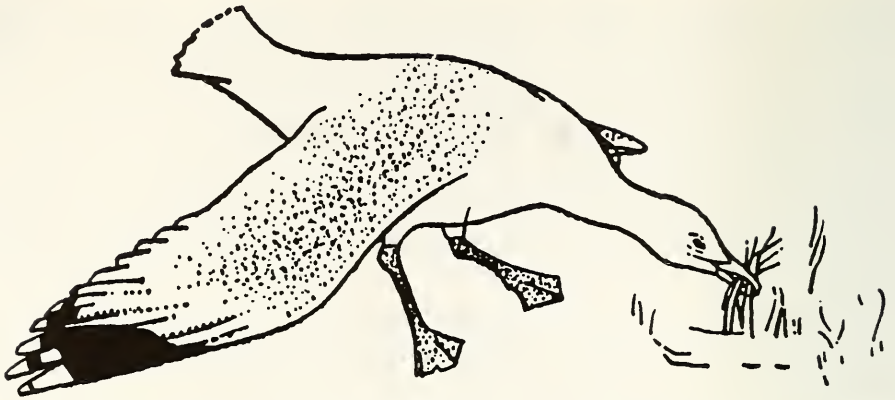
* See Appendix 1.

FIGURE 16—DISPLACEMENT AND REDIRECTION
(From Tinbergen, 1951, Fig. 91 (2))
The activity of grass-pulling by a herring-gull in a conflict mood involving attack and flight drives. The movement is normally used in nest-building, but occurs in the conflict situation as a *displacement* activity. In the latter case, the bird may choose strongly-rooted plants and pull at them savagely; it is *also redirecting* its attack drive.

such situations that most conflicts arise) owing to the combined presence in another animal (of the same species) of releasing stimuli for more than one drive. In such circumstances, the individual animal is likely to perform intention or displacement movements, as we have seen. It is therefore natural to find that these movements form the basis of most signals made by one animal to another. Human scientists are good at interpreting patterns of intention and displacement activity, and something of this capacity is present in some mammals. But in most lower vertebrates the instinct system predominates, and we cannot expect from them such sophisticated responses. Instead, an evolutionary process has taken place in many vertebrate lines, namely a change in the form of intention and displacement activities which qualifies them *to act as key stimuli* (p. 71). (For this whole field, see especially Lorenz, 1935, 1950; Tinbergen, 1948, 1952a.)

Displacement activities sometimes come to serve new functions which are not social. Thus the male three-spined stickleback in the parental phase cares for his fertilized eggs by fanning them with a characteristic fin movement. This same fanning movement also occurs as a displacement activity in conflict situations during the earlier phase of courtship. In both situations, it is performed at the mouth of the nest (Tinbergen and Van Iersel, 1947; Van Iersel, 1953). Morris (1952) has recently discovered that in streams where the fish breeds there is a considerable

passage of silt, which rapidly blocks the entrance to any abandoned nest. It is important for the male to keep the nest open in the early phase, and the displacement fanning serves just this function. In such cases, the movement (here fanning) is identical in the two circumstances, i.e., in its original ('autochthonous') context of parental care, and in its displacement context during the courtship phase. But wherever intention and displacement activities are used secondarily as social signals, they always change in a characteristic manner, which Huxley (1923) called *ritualization.*

Ritualization serves to make the movement provide simple key stimuli, by simplifying it and exaggerating it. Thus it can serve to trigger a releasing mechanism in another animal, and so enforce a change in the latter's mood which will lead to a resolution of the conflict in the signalling individual. The signalling animal can conveniently be called the *actor*, the animal reacting to the signals instinctively can be called the *reactor* (Tinbergen, 1953a). As the movement becomes ritualized (sometimes in different ways in different evolutionary lines) it is often further supported by the appearance of a new and visually striking *structure*, so placed as to be dramatically shown off by the movement itself. In due course, this structure may become the key stimulus for the reactor, and the movement now serves merely to display it most effectively. A dramatic example is shown in *Fig.* 17—the black mask of the black-headed gull. This mask is displayed to great advantage in the particular threat posture shown in the Figure, where it is vividly outlined in white. Such a structure is known as a *releaser* ('auslöser' of Lorenz, translated by Tinbergen). It is a structure evolved in relation to a releasing mechanism in another animal. Not all key stimulus structures are releasers. The short neck of hawks is known to be a key stimulus for flight in many birds on which they prey, as was shown by Lorenz and Tinbergen, by means of the model shown in *Fig.* 18. Nobody can suppose that the short neck of hawks was evolved to release flight in their prey! Some releasers have, however, been evolved to produce effects on members of other species (cf. Baerends, 1950; Cott, 1954; De Ruiter, 1955). Such are the warning colours of many caterpillars, designed to release drives other than the hunting drive in their enemies, or the ingenious releasers of some orchids, which induce insects to visit and fertilize them, without providing honey, by presenting the key stimuli for sexual behaviour. Releasers designed to affect members of the same species are called *social releasers*, and with these we are chiefly concerned. Many of the striking structures

FIGURE 17—A RELEASER STRUCTURE: THE MASK OF THE
BLACK-HEADED GULL (From Moynihan, 1955, Fig. 4)
A black-headed gull in the threat posture called 'aggressive upright'. The bird in
this posture faces its opponent, and the black mask framed by white thus appears as a
striking structure. Such a structure is called a 'releaser'.

and colours found especially in male animals are social releasers: thus the red breast of the robin is a social releaser used for purposes of threat. Releasers are by their nature striking, so they are liable to endanger the actor by attracting enemies. So they are often reversibly visible. The display plumage of many birds appears only in adults and only in the breeding season, timed by hormonal control. Often a structure normally concealed is shown off only by the display movement, and sometimes (as in the guppy, p. 75) the releasers are the outcome of rapidly reversible colour changes (cf. Morris, 1956).

A wealth of examples of ritualized movements and releasers is available by now. The principle is always the same—because of the crudity of the key stimulus mechanism, the signals must be laid on with a trowel. A single set of examples provided by Lorenz (1950) will illustrate the main
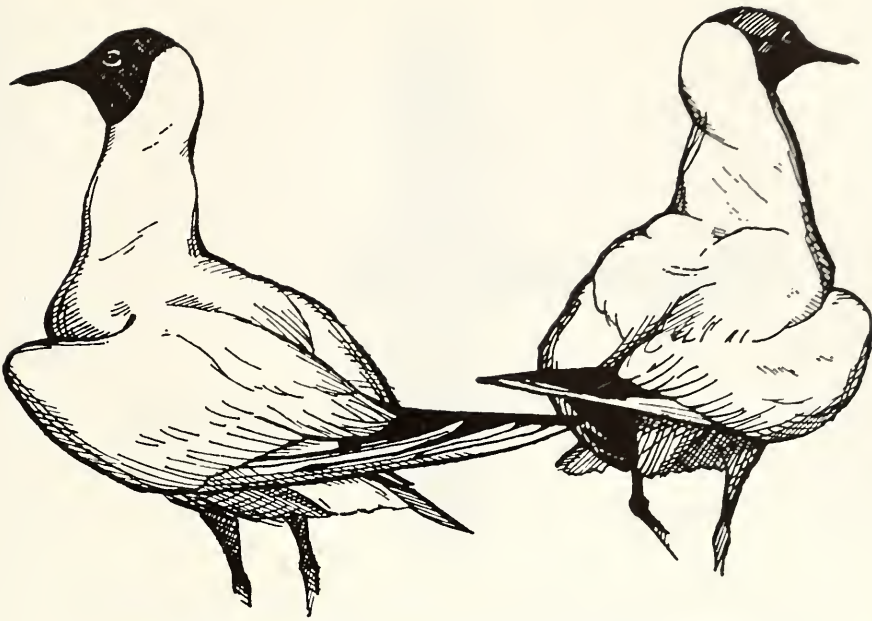
FIGURE 20—MUTUAL APPEASEMENT: HEAD-FLAGGING
IN THE BLACK-HEADED GULL (From Moynihan, 1955, Fig. 10)
The ceremony of head-flagging in the black-headed gull. The drawing 'shows the
position of two birds just after they have jerked their heads away from one another'
(Moynihan). This may be compared with Fig. 17 which shows a threat posture.
Head-flagging serves to hide the black mask so strikingly displayed in the threat
posture. It is thus an exact opposite of threat: an *appeasement* ceremony. (See p. 98)

points. In the cichlid fishes (often seen in aquaria) the parents release
and guide a following reaction in their young, which keeps these together
and under parental protection. They do it by various ritualizations of the
normal movement of a fish starting to swim away. In this normal move-
ment there are two elements which lend themselves well to ritualization:
a sideways swing of the head and body, and a movement of the fins at the
middle of the body, which are furled as the fish starts to swim, and re-
erected when it stops. In many species the two elements remain combined
in the releaser function, and the movement differs only in that 'after all
the grand preparation, the fish does not get further than 4 or 5 cms. and
then stops again'. The side movement of the head is, however, used to
guide the reaction of the young, much as is that of the indicators of a car.
But in some of these species the fin movement is accentuated, and es-
pecially in these species the relevant fin has become richly coloured. In
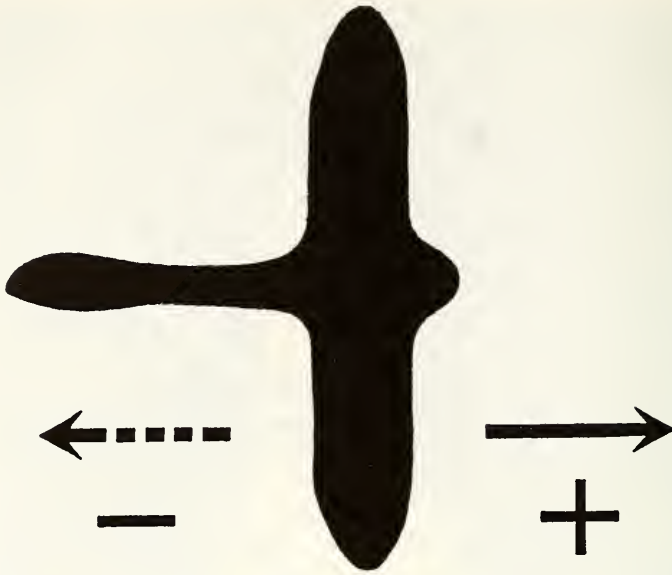*Hemichromis bimaculatus*, the fin is richly 'jewelled', and the intention

FIGURE 18—A KEY STIMULUS IS NOT NECESSARILY A RELEASER
(From Tinbergen, 1951, Fig. 65)

A cardboard model used by Lorenz and Tinbergen to study the flight (i.e. escape) reactions of young birds. The model was towed overhead in the air. When moving with the 'short neck' in front it released escape reactions, when moving with the 'long neck' in front it did not. This and many other experiments showed that the rather complex relationship 'flying object with short neck in front' is a key stimulus for escape reactions in young birds of many species. (For such complex relationships as key stimuli, *cf*. p. 71.)

Many birds of prey (such as hawks) have short necks (as opposed to the long necks of innocuous birds such as geese). The releasing mechanism will thus ensure, on the whole, escape reactions to birds of prey in flight. But the short necks of hawks were *not* evolved to warn potential prey. Hence the short neck is *not* a 'releaser' in the technical sense.

movement has been ritualized into 'an exceedingly quick twitching that makes the jewels on the fin flicker like a heliograph'. But in the genera Apistogramma and Nannacara, the side-swing of the head is all that is left of the original movement, neither fin nor body moving at all; the swing is now a rapid jerk. In all species of Apistogramma the female, in parental phase, has a bright black and yellow pattern on the head and throat which enhances the effect of the movement. In another species, *Herichthys cyanoguttatus*, a related movement has become a warning signal for the young. The female broods the young, while the male mainly defends the breeding area. The broody female has a jet black throat and underside, and when alarmed by big fish or the experimenter's hand she

furiously twitches her head and body sideways, remaining quite stationary. The young, 'as if drawn by a strong magnet, converge from all sides and lie down on the bottom just under their mother'. The key stimulus function of the parent's movement is easy to show. A black fountain pen, twitched sideways between the fingers, will attract the swarm of young even away from the mother (if it is blacker and more vigorously twitched) 'notwithstanding the male's furious attacks upon the substituted object!'

Among the more important social interactions of animals is that of *threat*. Threat displays have been shown consistently to result from conflict moods in which attack and flight drives are combined in various ways. Tinbergen suggested that, when both drives are at a fairly low level, the form of threat is a ritualized ambivalent combination of intention movements of both drives, but when both drives are high the threat is a ritualized displacement activity (1952a, b; 1953b). This has been largely substantiated in the black-headed gull by Moynihan (1955), who studied five different threat postures. His results are summed up in *Fig.* 19. The releaser (the black mask—*Fig.* 17, p. 94) has developed in relation to the 'aggressive upright' threat posture, in which as *Fig.* 17 shows, it is strikingly displayed. As shown in *Fig.* 19, if either drive predominates to a certain extent, the result will be a simple mood, expressed in overt attack or escape.

Where two drives are in conflict in the *reactor*, the behaviour of the actor may serve to reduce the *relative* level of one of these by releasing the other more strongly. But there seem to be some instances where a given drive has *inhibitory* as well as releasing mechanisms (Bastock and Manning, 1955). In a fight between two wolves, the loser may save his life by adopting a posture in which his throat is exposed without any defence to the teeth of the winner. The posture does not release flight in the winner, but it does inhibit attack. The tensing of the frustrated winner's neck muscles indicates the force of the conflict within one drive ('to attack' and 'not to attack'). Notice that it is sometimes useful for the actor to induce a conflict in the reactor. The repulsive stimuli presented by cold female clawed frogs may perhaps be regarded as inhibitory stimuli of this kind (cf. p. 42). A third kind of negative effect may be produced by denying all the key stimuli which release a particular drive. The most striking example was discovered by Tinbergen and Moynihan (1952)— head-flagging in the black-headed gull. This is a ritual observed between two birds which are forming a pair for reproductive purposes (cf. Chapter 4). The ritual reduces their mutual tendencies to attack or

escape from each other. The birds jerk their heads aside so as to point their black masks away from each other, as shown in *Fig.* 20. We have seen that the mask is a threat releaser (especially *Fig.* 17, p. 94). Head-flagging is therefore the exact opposite of threat. All that is presented to the partner is a plain white neck—rather like the plain white flag which in human encounters serves to deny the hostile intentions announced by a variety of brightly patterned banners. (For *Fig.* 20, see p. 95.)

Ritualized *appeasement* postures (like head-flagging) are of many kinds, but they are normally the exact opposites of threat postures in any given species, and may be supposed to have evolved after the latter were established (Morris, 1956). Male sticklebacks, for instance, threaten with their heads down; the appeasement posture in this species is exactly the reverse, the heads being pointed upwards. Appeasement, like threat and all other instinctive social performances, does not communicate information to the other animal, in the sense in which we normally use the phrase. It activates an inhibitory or releasing mechanism which generates compulsive behaviour in the reactor. This is shown specially clearly in the case of the frustrated wolf. It is the general characteristic of instinctive interaction, and exactly what we should expect from the properties of instinctive mechanisms. No subtle nuances are conveyed in this way. And notice that in all the instances we have so far considered the concept of another individual animal in a particular mood just does not arise for either actor or reactor. Their world is made up of a kaleidoscope of key stimuli, some of which happen normally to be associated with living organisms of the same species, but any of which can be replaced by inanimate models. This bizarre system, as we shall see, comes to be reproduced in a different way in man, where experiences of particular individuals and their changing social behaviour may be pathologically transmuted into a strange mêlée of fantasies of phalluses, breasts and other structural forms, which from their nature might form part of any individual of given sex, and may in turn be replaced or symbolized by inanimate objects. This is the strange world of Freudian 'symbolism' (Chapter 6).

There is a curious and significant analogy linking the relations between several instinctive mechanisms in one animal, on one hand, and social relations between individual animals on the other. For in so far as these are instinctive, there is no real sharing of information between actor and reactor; there is only crude interaction, analogous with the competitive interactions of drives within the individual. The ambiguous word 'conflict'
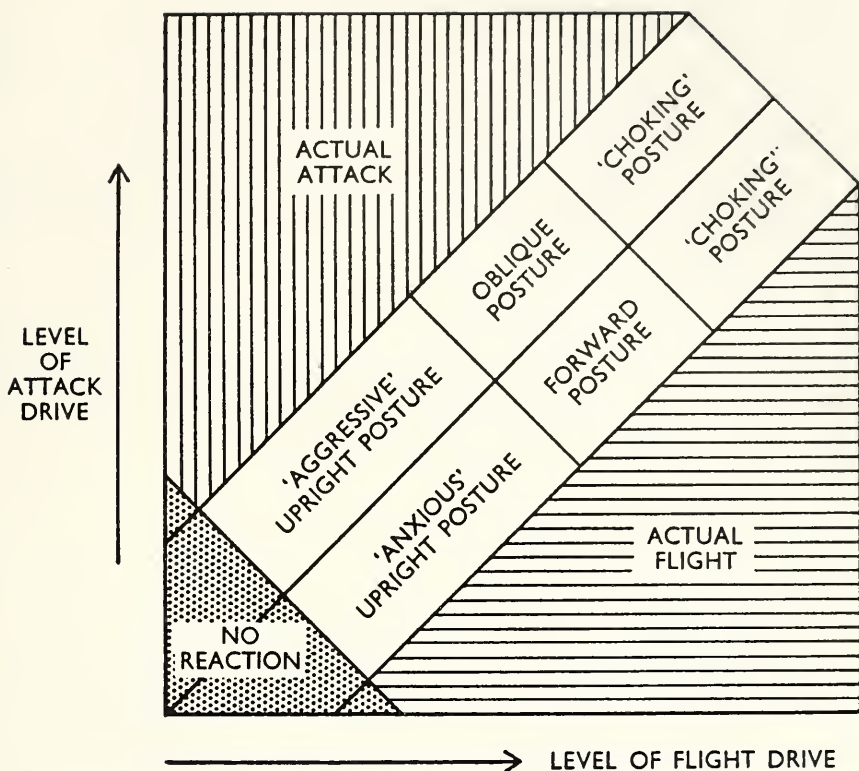
FIGURE 19—THREAT POSTURES AND THE ATTACK AND FLIGHT DRIVES
(After Morris, 1956, Fig. 10; modified and supplemented
from Moynihan, 1955, p. 57)

This diagram shows, in a manner devised by Morris, (based on a figure in Hayes *et al.*, 1953), the observations of Moynihan on threat and other postures in black-headed gulls.

The attack drive is supposed to increase upwards in the diagram; the flight drive increases to the right. Any point on the diagram thus corresponds to a particular mood, so far as these two drives are concerned. (Thus in the right-hand bottom corner the flight drive is high and the attack drive low; in the left-hand top corner the flight drive is low and the attack drive high; and so on.) The diagram then shows what sorts of overt behaviour are observed in various moods.

In the stippled area, both flight and attack drives are very low; in these conditions no reactions are observed. In the vertically shaded area, the attack drive is always much higher than the flight drive; in these conditions actual attack is observed. In the horizontally shaded area, the flight drive is always much higher than the attack drive; in these conditions actual flight is observed.

In the unshaded band running across the diagram, both attack and flight drives are high enough for reactions, but more or less equally balanced. In these conditions threat postures are observed.

When both drives are fairly low and attack preponderates, the gulls show a posture

called 'aggressive upright'.* When both drives are fairly low and flight preponderates, they show a different posture called 'anxious upright'. When both drives are moderately high, the gulls show an 'oblique' posture if attack preponderates, a 'forward' posture if flight preponderates. These four postures, all different, can all be analysed as *compromise* postures, made up of intention movements of *both* drives.

But when both drives are very high, and nearly in balance, the resulting conflict mood gives rise to the posture and movements called 'choking'. This is a *displacement* activity derived from nest-building (though it includes, according to Moynihan, traces of attack and flight movements).

* *This posture is shown in Fig. 17 (p. 94)*

(which can mean conflict within one drive, conflict between drives in one animal, or conflict between individual animals), spot-lights this fundamental property of instinctive social behaviour.

RATIONALIZATION

Personality, Attention and Self-esteem

From the strange world of the lower animals, we can return to appreciate better, by way of contrast, some final aspects of intelligence. We have seen the instinct-governed animal as a battleground of competing units, spawned in ever-increasing numbers. Its degradation from evolutionary status can be viewed in two related ways. On the one hand, there is the increasing automatism, on the other there is the disintegration into more and more separate sub-drives. Looked at in time, the result is a succession of dissociated moods as the drives take the stage in turn. In contrast to this, the progressive nature of intelligence is maintained, as we saw earlier, by a process of sustained integration, which keeps the organism functioning as an organized *whole*. If we look at *this* in terms of time, we arrive at the conception of a single *personality*, linking the succession of moods so that they follow each other, not as a result of the competition of sub-units, but as an expression of the unity of the whole preserved in a changing external environment. 'The many change and pass, the one remains'. Thus personality is a function of intelligence.

The expression of intelligence in time is the mechanism of *attention*. There are many ways of picturing this. We can think of it, with Halstead, as like the tuning eye of a radio receiver. We can think of it as a sort of searchlight, or an electronic scanner, or indeed as a sort of interior eye. All these are crude images of a mechanism of barely imaginable delicacy

(which seems to hinge on some intricate interplay between the cerebral neocortex and a chain of structures further back in the brain—Penfield and Rasmussen, 1952; Adrian *et al.*, ed., 1954). Some of these analogies help us to express what anyone can observe about his own attention. We know that the beam of attention can be narrowed or enlarged: we can attend to a minutely restricted detail, or to a broad reach of the imagination. We know that the focus can be sharpened by what we call concentration. We may feel that there is an inexorable limit here—that the more we attend to at a given moment, the more muzzy the mental image must become; that the price paid for sharpness of focus is narrowness of view. But perhaps the combination of the two is impossible only in Lord Mountbatten's sense ('the difficult we do at once, the impossible takes time'). We may have little conception at present of what may be achieved in this respect. It is in this sense that we may think of the function of poetry—to 'heighten consciousness', as Dame Edith Sitwell put it—and not only poetry, but any of the arts. The imagery of Shakespeare can combine extreme sharpness of focus with an imperial breadth of implication, and convey something of this to his audience.

We can attend to the inputs from our sense organs, not only as such but as the carriers of the signals of speech. We can be aware of our perceptions, and above all of the behaviour of others. Through a delicate integration of the information we receive from them—verbal, postural, gestural—we can instantly reconstruct their feelings, what is going on in their brains. We can attend to the store of information our intelligence has accumulated in the past: we can be aware of past experience, and the computations performed upon it, the imaginative sorting and extrapolation. Finally, we can attend to the state of our own brain at the moment: we can be aware of our feelings. We should be able to attend to any desired combination of all these kinds of things.

Intelligence did not evolve in a magical uprush, totally displacing the old instinctive mechanisms. It evolved in animals possessed of primary drives. An older brain structure was revamped to link the newly developed neocortex with the mechanisms at the base of the brain which reigned over the instinct system (cf. e.g. Le Gros Clark and Meyer, 1950; Chance and Mead, 1953; Rothfield and Harmon, 1954). We thus retain the older mechanisms, but they are potentially subject to the controlling intelligence. So we can become aware of, or attend to, the state of our old drives, and this is one aspect of 'awareness of our feelings'. Sometimes this is called attending to our emotions (though many scientists have a

habit of confining this term to the emergency emotions of rage and fear). There is nothing inherently regrettable about these survivals. We can put our emotions to valuable work by means of a sort of vernier principle. On becoming aware of a state of fear, for instance, we can use our attention to examine the relevant circumstances more acutely; we may or may not then find the instinctive report justified. Awareness implies control, and the intelligent organism is not compelled to *act* on his emotions. It is precisely when we cannot be aware of our emotions that they issue in behaviour we should not rationally choose. Provided we are aware, it no longer matters if the emotions are malfunctioning. One of our patients noticed that, when putting her baby's table-shelf on to his high chair, she more than once 'accidentally' jolted his head with it. When, on subsequent occasions, she became aware (as a result of analysis) that she was feeling angry with the baby, she was able to abstain from such accidents. The anger was inappropriate, but awareness of it restored to her intelligence the control of her motor behaviour. The role of instinctive mechanisms in intelligence may be diagrammed as in *Fig.* 21. Instead of competing with each other for direct control of behaviour, they should have no direct access to the executive motor outputs. Instead, they should be employed as particular sources of information, among many others, for the intelligence to integrate. In much the same way, on the output side, the intelligence can set up routine mechanisms, such as skills, to which the control of some kinds of action can be delegated; but it should always be possible to review and modify them 'from above'. And let us be absolutely clear that this is not some sort of tyranny of a cold, unfeeling intellect over warm, human emotions. On the contrary, we can only *enjoy* emotional aspects of experience to the extent to which we are aware of them. It is a rich awareness of all our feelings, in every shade and nuance, that makes up the enjoyment of life.

In the instinct system of lower animals, successful operation of the mechanisms is signalled automatically. The success of any particular sequence of routine or reproductive behaviour is signalled by the arrival of a cut-off input (p. 82); as we have seen, owing to the instinctive nature of this device, it sometimes records a non-existent success. Meanwhile the efficiency of behaviour designed to avert frustration or danger is monitored by the equally automatic mechanisms of rage and fear. In the intelligence system, these indices may still be employed in the way we have indicated, as sources of information for the unified personality. Moreover, there must be a unified system of self-appraisal, operating
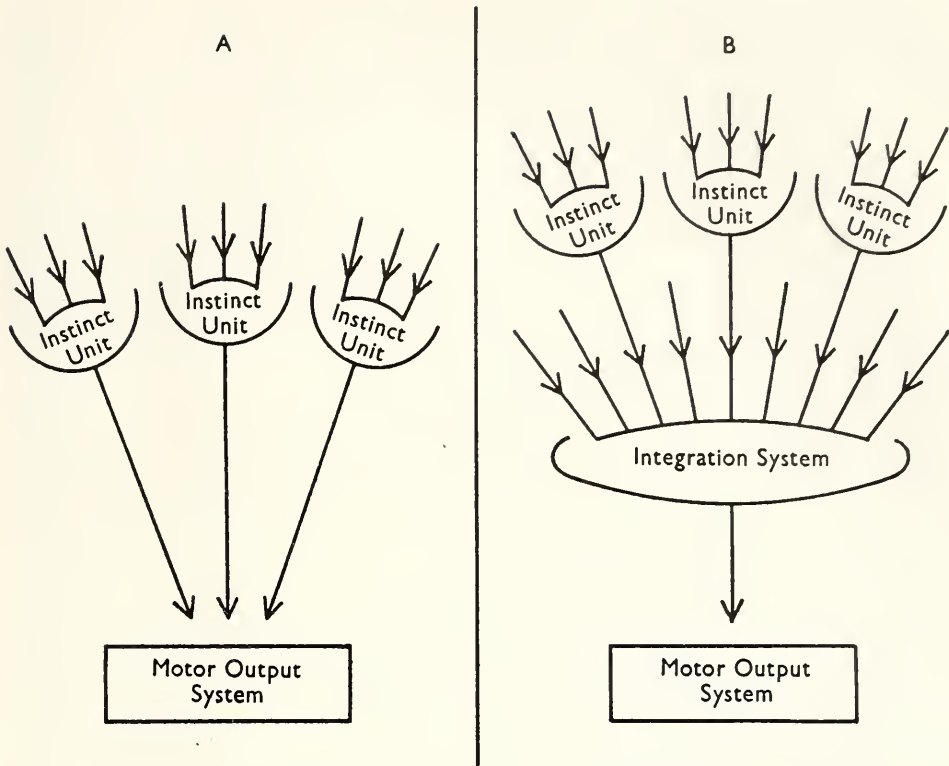
A

B

FIGURE 21—AWARENESS OF EMOTIONS

A. In instinctive function, there are a number of isolated instinctive mechanisms. Some inputs reach one, other inputs another. There is no comparison between these sets of inputs, and the instinctive mechanisms compete for direct control of the motor output system. (Compare Fig. 3A, p. 47.)

B. In intelligent function, all inputs can be compared in one unified mechanism of integration, which then determines motor output. (Compare Fig. 3B, p. 47.) The old instinctive mechanisms no longer influence motor output directly, but act as special inputs into the integration system, where they provide rough, summarized information. This can then be verified, amplified or corrected (on a sort of vernier principle) by the use of other more discriminating input channels, represented as other arrows entering the integration system.

throughout all moods, so that the intelligent individual has a continuous report of the success of his predictions and decisions. If this system is working smoothly, mistakes will be rare and easily reversible, causing no changes in the environment which cannot be rectified by a change in the individual's behaviour. Such mistakes will be treated as indications that further exploration (overt or imaginative) is necessary. They may arise through wrong assessment of either the individual's abilities or the

environmental situation, and will suggest further scrutiny of both. The proper functioning of this system depends on the proper functioning of the exploratory drive. But we have seen that this in turn depends on a certain faith in one's exploratory powers and one's capacity to predict (p. 37). This faith is enhanced by success, and reduced by failure, over long periods of time. We may call it *self-esteem*. In a fully intelligent individual, self-esteem would always be high, and so, by the same token, would be the exploratory drive. We can distinguish two aspects of self-esteem, and call them *self-confidence* and *self-security*. The former relates to constructive success (p. 55), the latter to success in the prediction and hence elimination of danger.

Owing to the properties of the surviving instinct mechanisms, temporary frustration will evoke rage, and immediate danger will evoke fear. The same will be true of the releasing stimuli which signal such situations, whether they signal accurately or not. If the individual's self-esteem is high, this is of no consequence, for exploration and prediction will function as usual. But if his self-esteem is low, his exploratory drive will be impaired. If his self-confidence is low, he will not be able to tolerate exploration (of himself or his environment) when his rage mechanism is strongly activated; if his self-security is low, he will not tolerate exploration when his fear mechanism is highly active. In these circumstances the whole delicate mechanism of intelligence may be disrupted. Under such conditions, the individual cannot tolerate inspection of his mistakes as such, for a mistake implies that prediction has been at fault, and therefore that further exploration is necessary. Up to this point we have simply contrasted intelligence with the instinct system. We now turn to the sinister spectacle of a third mode of function—the perversion of intelligence. We shall meet with a curious paradox. This perverted function is just as unique to man as intelligence itself (it is totally lacking in the so-called experimental neuroses produced artificially in the lower animals). Yet its effect is to turn back the evolutionary clock, and plunge humanity again into instinctive function—instinctive function of a new and dangerous kind, for its shaping no longer even obeys the crude but workable rules we have traced in the lower animals. So far, then (to apply an old myth), we have followed the fortunes of Prometheus, the Fore-thinker, who gave man fire and tools and social organization and raised him above the beasts. But Prometheus had a brother. And we must now turn to Epimetheus, the After-thinker, who opened the fatal box of Pandora and let loose a flood of evils on mankind. The last thing to

emerge from the box was Hope—but it was a false Hope. Our future rests with Forethought, not with Afterthought. But, for the remainder of this chapter, we shall take a look at Epimetheus in action.

The Story of a Legacy

Some half a century ago, Hugo Münsterberg, Professor of Psychology at Harvard, was invited by a colleague to witness the hypnotic treatment, for some disorder, of a lady of rank and wealth, in a city which the professor had never visited before. Münsterberg was an honest and accurate observer, and we have his own account (1909) of the perfectly authentic incident that followed; as the story will show, he was an honest man in other ways.

One morning during the treatment, Münsterberg was present. The lady had never met him before, and he was introduced to her under a fictitious, indifferent name. While she was in a hypnotic state, the doctor gave her a post-hypnotic suggestion. That afternoon, she was to return to his house, where she would find him and also Münsterberg. As soon as the doctor took out his watch, she was to declare her willingness to make a will, leaving all her property to the professor. On awakening from the hypnotic state, the lady left the doctor's house, taking no notice at all of his guest. Here was the straightforward imposition of an instinctive reaction chain, complete with the specification of appetitive behaviour and consummatory act, and equipped with a releasing mechanism for the latter, to be triggered by the simple stimulus of seeing the doctor take out his watch. An animal provided innately or by training with such a mechanism will act upon it, and that is all. We are now to see what *Homo sapiens* does in these circumstances.

At the hour appointed, the lady returned to the doctor's house, apparently not knowing why she came. She found there the doctor, the professor and three or four colleagues who wanted to watch the experiment. She explained without embarrassment that she had happened to be passing, and thought it would be nice to look in and show the doctor how much better she felt; she could also ask him whether it would be all right for her to go to the theatre. Münsterberg engaged her in conversation about opera and the drama, 'exactly as if we had met at any dinner party, and there was nothing in the least strange in her ideas or in her expression of them'.

Suddenly the doctor asked how late it was, and took his watch out of his pocket. 'There was a moment of hesitation. The lady spoke the next few words in a stammering way; but then she rushed on and told us that she had not expected to find such a company, but that her real purpose in coming was to report to me that she had selected me as her heir and that now she wanted accordingly to make her last will. Up to this moment her action had been a mechanical carrying out of the post-hypnotic suggestion, but the really interesting part was now to begin.'

The professor protested that there must be some mistake, for she could not possibly have met him before. He mentioned a fictitious city in which he claimed to live. She answered that she had spent the previous winter in that city, and had met him there daily in the streets, and had, from the first, planned to make him her heir. At least, insisted Münsterberg, she had never spoken to him. On the contrary, said the lady, they had met frequently in society.

Gamely persisting, the reluctant heir pointed out the unnaturalness of leaving all her money to a stranger and disinheriting her own children. She replied that 'she had thought it out for years, that it would be a blessing for the children not to be burdened with such riches, while she knew that I would use them in a philanthropic way'.

The other people chipped in with a variety of objections, to each of which she had an answer pat.

Finally, the professor told her the truth. As she knew, she had had a hypnotic session with her doctor that morning. Well, he had implanted the whole idea, in Münsterberg's presence, as a post-hypnotic suggestion. 'With a charming smile she replied that she knew all that perfectly well, but that she did not contradict and resist this proposition of the doctor simply because it by chance coincided entirely with her own cherished plans, which had been perfectly firm in her mind for a year.' She had been going to write to Münsterberg about it any day now. She would not listen to any more doubts of her sincerity, and was ready to take an oath that she had made up her mind before being hypnotized. To settle the matter, she called for paper and wrote a codicil on the spot, leaving all her property to 'the fictitious man from the fictitious town'. The others had to sign as witnesses.

The professor put the document in his pocket, and adroitly returned to the subject of theatrical matters. After a few minutes, the lady 'had evidently forgotten the whole episode'. She treated the professor again as a complete stranger, and when he asked if she happened to know the

city they had mentioned, she said she had once passed through it on the train. When she left, 'she had clearly not the slightest remembrance of that document in my pocket, which we others then burned together'.

The Process of Rationalization

For the moment we shall concentrate on one aspect of this rather terrifying story. Let Münsterberg himself sum up: 'All her memories became falsified, all her tastes and emotions were turned upside down, all her life experiences were mingled with and supplemented by untrammelled imagination, coupled with the strongest feeling of certainty and sincerity, and yet everything was moulded by her own mind, with the exception of that one decision which had been urged upon her from the outside.'

For this extraordinary process, we owe to Freud (as so much else) the term *rationalization*, and some of the material of the past sections enables us to give this process a relatively precise description. That it is 'Afterthought' is obvious, in the sense that the normal sequence of intelligence is reversed. Instead of a process of exploration and imagination issuing in action, we have an action predetermined, and a remarkable series of computations made to explain it, to present it to the actor and others as if it were a rational, intelligent action. It is exactly like cooking the books. This may be described with perfect justice as a *vacuum inactivity*, or hallucination of gratification (p. 84), *of the exploratory drive itself*. In the second interview, the woman's exploratory drive was stimulated, but at the same time blocked from real expression by the post-hypnotic situation. The result is the sort of shunt we observed in the instinct system (p. 82). The goal of exploration is the real solution of a problem in behaviour; in rationalization, the attainment of this goal is *simulated* by processes in the brain no longer guided by real experience. When his self-esteem is low (p. 104), *Homo* likes to appear *sapiens* whether he is or not. He cannot tolerate the recognition that he is acting instinctively. He must pretend to himself and others that he has solved the problem, and that the imposed behaviour is really rational and all his own work. This self-deception makes it impossible to scrutinize the imposed behaviour, and recognize its irrational nature; impossible, therefore, to re-explore and correct it. Thus rationalization on any one occasion is pregnant with mischief for the future. An automatism has crept in, and the means of eliminating it in future are blocked. As we shall see in detail, it is indeed

'a tangled web we weave when first we practise to deceive' ourselves and others.

The most obvious aspect of the process in the Münsterberg story is the falsification of the lady's own past experience. This becomes necessary to support the falsification of her present wishes and feelings; and finally it is accompanied by predictions for the future which may or may not be true but which are made solely to support her case—those about the effects of disinheritance on her children, and the way in which the professor will use the money. The argument so generated is diabolically difficult to break, as the later parts of her defence make clear. She is prepared to go on indefinitely answering any objection that may be raised, and the chain of further distortion thus made necessary is as endless as the process of falsifying history in a totalitarian state.

One other important aspect of rationalization must be noticed at this stage. The process we have so far considered is the result of a block on observing one's own irrational behaviour, and is designed to present this as the result of rational decision. There is a no less pathological process which, on the whole, escaped the notice of Freud. Any block on observing *other people's* irrational behaviour may lead to, and be reinforced by, an exactly similar chain of falsifications, with the object of proving that *their* behaviour is rational. (It is clear by now that rational is only another word for intelligent, and irrational for instinctive.) We can believe our own behaviour to be rational when it is in fact irrational, and that of others to be irrational when it is in fact rational; or we can make precisely the contrary pair of mistakes. Tiresome as this sentence may be, its importance cannot be overstated. For if we can only conceive of the first pair of mistakes, we are entirely at the mercy of the irrational behaviour of others.

Moralization and Mythology

The term 'rationalization' seems appropriate enough to the case we have narrated. For the woman's behaviour would have been perfectly rational if all her assumptions had been true; and, though in fact most of them were false, they were not inherently impossible. But there are still further degradations from intelligent behaviour. Instead of being rationalized, behaviour may be justified, or *moralized*. Now it must be clear by now that intelligence cannot work by rules, and indeed *no* rules, however refined,

will generate intelligent behaviour if applied in *any* situation (p. 33). Rationalization means proving (falsely) that a given piece of behaviour was the best possible solution of one particular problem. But moralization is based on the assumption that there *is* a perfect fixed code of rules. It consists in proving, to oneself and others, that a particular piece of behaviour was 'right' because it was a correct application of the code of rules selected (there are plenty of candidates!) to the situation in hand. The rules in turn are justified by the establishment of a sort of cosmic false experience, or *mythology*. Since no code of rules is 'right', the mythical facts adduced in support of any one code are naturally quite impossible, and utterly at variance with human experience.

Since the environment (e.g. other people) must often fail to act in such a way that a given code of rules can be applied with success, there develops a necessity to deny any environmental inputs which do not fit in with the code. Thus we arrive at those patients studied by Halstead (p. 34), who *blamed* his apparatus, and said it *should* not behave in certain ways inconsistent with their preconceptions. By such insidious processes, attention may be withdrawn altogether from the question of the rationality of our own behaviour or that of others, and diverted to the utterly sterile and meaningless question of whether we or they are to blame. Thus any attempt to *change* either our or their behaviour is effectively blocked, for the question has become one about the past, which cannot be altered. A discussion of who is to blame contains the underlying assumption that nothing can be changed in the future. It also almost always implies that one party must be 'right' and the other 'wrong', when what is called for may be a change in the relationship on both sides.

To perceive that moralization is dangerous and sterile does not, of course, imply some sort of delinquent assumption that 'all things are lawful to the Karamazovs', or anybody else, or that anything currently considered criminal is intelligent behaviour. A code of rules is one thing; a few very general and flexible principles are another. One such can be derived from everything we have said of evolutionary machines. Intelligent behaviour is progressive, and in any conceivable situation the best course is that which will leave open as many alternatives as possible for subsequent behaviour. In the light of this we can easily conclude, for instance, that murder and war are undesirable activities, and that co-operation is more promising than exploitation (see p. 170). But this is a very different approach. We may sum it up in the words of the hero of

one of Asimov's stories (1953)—'Never let your sense of morals prevent you from doing what is right!'

Apart from the general question of preventing crime altogether, the intelligent aspects of human criminal law and justice, at this stage of human evolution, are concerned with the problems of changing the behaviour of a criminal where possible, and, if not, protecting others from him in future. The problem of deterring others from following his example is also a realistic one in principle, though rarely approached with an adequate sense of our present ignorance and need for research. But, as many have pointed out, the making and administration of laws is hopelessly confused if contaminated by the principle of *retribution*, which is the cultural equivalent of blame. Moralization is the supreme expression of Afterthought; it is a sort of glorying in instinctive behaviour.

Dissociation and Defence

To return to Münsterberg's observations (pp. 105–108), perhaps the most striking of all the curious features of the legacy incident is the woman's dissociation. By this time (pp. 46, 57, 69) we need have no difficulty in recognizing this. Her behaviour was quite sharply divided into three phases. The first was the appetitive part of the reaction chain, and ended when the watch was taken out. The second was the consummatory act stage, and ended when the act was complete—i.e., when the will had been signed and witnessed. The third began at this point. It is clear from the description that there was a total dissociation between the middle phase and the other two. What went on in the mood of the middle phase was totally inaccessible in the other moods. The analogy with animal instinctive behaviour is perfect (pp. 46–48).

This dissociation is an inevitable by-product of rationalization, which could only achieve its spurious aim if the falsifications it entailed *could not be compared* with the woman's feelings and experiences in more usual moods. Such comparison would at once have told her that something was seriously wrong. To avoid this, isolation proceeds apace along with rationalization, breaking the integrated system up into separate splinters. For instance, during the crucial mood, it was necessary that she should have no access to memories which would plainly have conflicted with those she was inventing. Conversely, after the event, the whole legacy

episode was now inaccessible. But there is an obvious asymmetry in this case. The mood set up when the will was discussed was, for the woman, a quite exceptional one. It stood in complete isolation from the rest of her experiences over long stretches of time. It seems natural to think of the real personality as that which she expressed over these long periods of her life, and to conceive of the freakish post-hypnotic phase as if a transient other personality had taken over. But there was clear evidence, for this short period, of a concentrated expression of this other personality. Such beautifully clear-cut alternations are not common. More frequently, atypical moods take over for exceedingly brief periods—say for the fraction of a second that makes possible a Freudian slip of the tongue. Freud himself therefore conceived of matters in a rather static way. He postulated a conscious personality, and a mass of unconscious material which was, he said, *repressed*. This concept was perhaps the most important of all Freud's great contributions. Many before him had talked of unconscious material (e.g., Darwin and Dostoievsky). Freud's achievement was to define unconscious material as that which was *inaccessible* to the conscious personality.

We can now see, however, that repression cuts both ways. The woman's general experience, the material of what we should tend to call her conscious personality, was just as completely repressed in the legacy phase, as the legacy material was repressed afterwards in her more normal state. The more fundamental concept, therefore, is the dissociation between the two. It is, however, convenient to single out, in a given individual, the organized system that controls his behaviour *for most of the time*, and to call this his personality. We can then refer to material available in other, more transient moods, and not in the periods when the personality is in control, as repressed. We can repress our current feelings, the current feelings of others inferable from their behaviour, any kind of current sensory input, any past experiences, or the result of any past computations.

We may now re-examine the concept of attention, and think of it in the following terms. From moment to moment we are the subjects of a flickering series of moods, changing with inconceivable rapidity—far, far faster than in the lower animals. The object of attention is to keep pace with these changes. Our conscious awareness appears virtually continuous—but so does a very rapidly flickering light to our eyes. If our attention could discriminate the finest intervals of time, and freely scan what was going on in each of them, we should (in Freud's sense) have no

unconscious. (For skills which we do not *choose* to attend to are not in-accessible, and hence not unconscious in his sense.) In fact, there is a definite relationship between the exploratory drive and certain rhyth-mical aspects of nervous function—such as the capacity to discriminate separate flashes in a rapidly flickering light (Halstead, 1947). If attention were perfectly efficient, we should have perfectly rational control of our behaviour at all times. As things are, it is only with extreme concen-tration that we can maintain near-perfect attention, and hence control, for quite short periods. Every time the attention misses a beat and fails to scan a momentary mood, then the motives obtaining in that mood are enabled to slip past the controlling intelligence, and influence our behaviour in ways not of our own choosing. This is what Freud called the return of the repressed, and it issues, in mild and transitory form, in the famous slips of tongue, pen and type that he was able to demonstrate in such abundance (1938). In more serious dosage, it issues in all those disastrous aberrations that we ascribe to unconscious, unintentional behaviour.

The mechanism of attention can be impaired in a rather general way by such treatments as temporary reduction of the oxygen supply to the brain. Halstead (1947, p. 116) mentions a subject who had been trained to make particular distinct responses when shown differently shaped sil-houettes of aircraft, and was tested under these physiological conditions. He 'repeatedly denied ability to "see" the briefly exposed form, yet . . . made perfect discriminations throughout'. He was thus unable to attend to the inputs to which he reacted. But in life outside the laboratory it is not a matter of regular or arbitrary beat-missing on the part of the attention mechanism; it misses, and therefore fails to control, precisely those moods governed by processes which have been isolated from the main mass of organized material making up the personality. The material thus dissociated does not normally remain collected in one large rival mass. On the contrary, just as in the animal instinct system, it continually fragments into more and more isolated blocks, which we may call *fantasies*. These fantasies compete much in the manner of competing drives; thus arise *conflicts* between more than one irrational fantasy for control of behaviour. Such fantasies are in fact perfectly analogous, once formed, with the instinctive mechanisms of animals, and the whole process is a return to instinctive function, in which inputs by-pass the intelligent integration system altogether to produce, in competition with each other, direct effects on the output (contrast *Fig.* 21, p. 103).

Once we see the matter in these more dynamic terms, we can also see that the attention may break down for quite long periods, permitting the *sustained* activity of wholly irrational controls; such states may be called *proconscious*.* These may fuse into what we can only call a *pseudopersonality*: we can hardly speak of any last vestige of real intelligence in the case of such a one as Adolf Hitler.

In less serious cases, an attempt may be made to reintegrate the disintegrating fragments by means of what we shall call a *defence system*, in which the scattered material is *reassociated* without entirely disturbing well-established rationalizations. Fact and fantasy may be blended together into a coherent system or organizing principle, on which the main thread of personality can hang. Such a view of the world, part false, part true, may attain great complexity, logical force and aesthetic elegance in those individuals who are combating grave imposed dissociation with considerable levels of intelligence factors, especially that of integration itself. But a defence system must not be confused with true integration, which is only to be attained at the price of eliminating every trace of rationalization. A defence may appear highly stable, but its invariable end is a new disintegration. This process we shall explore in the great dramatists, and especially in the case of Sophocles (Chapter 8). And there is another dangerous aspect of defence. Rationalization arises under conditions of low self-esteem. But as soon as it has proceeded, to any extent, real self-esteem is gradually replaced by what we may call *false* self-esteem. The individual's faith in his success is now boosted, not by really successful prediction, but by the maintenance of existing rationalizations. The more these accumulate, the more inefficient his actual predictions, and the lower his true self-esteem falls. The process is a vicious cycle, and with every coil true self-esteem is further reduced, the block on exploration is continually reinforced, and eventually it becomes an urgent matter for the individual to maintain at all costs the defence system which falsely proves to him his own capacity for success. Thus rationalization perpetuates itself.

Some idea of the time aspects of attention and dissociation can be obtained from the elegant experiments of Benton (1950), of which we can here only afford a glimpse. He used a tachistoscope (='very rapid view'), a common device in psychological experiments, by means of which a word or other pattern can be presented to the subject's view for very short periods. When the machine is set at certain rates, it takes a

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* The prefix 'pro' is used in the sense of 'instead of'.

number of repeated presentations before the subject can recognize any complex pattern, and this number, with other features, can be scored. Benton presented, in each test, two four-letter words, in different colours but with their letters interspersed. The subject was to recognize the two words. Of many interesting things Benton observed, the most important is this. He would choose two words of which one might be neutral or agreeable, but the other in some way unpleasant. But the two words, if combined as a phrase, were chosen for their effectiveness in evoking extremely distressing childhood experiences (for instance, 'play' and 'muck', which together might evoke associations of stressful and conflicting parental attitudes during toilet training). It was found that when the neutral word was presented with another neutral word, to make an innocuous phrase (e.g., 'play' and 'soft'), it was recognized more rapidly (that is, after fewer presentations in the machine) than when presented in the disturbing combination. We need not enter here on the very elaborate network of 'control' experiments which eliminated any possibility of this being fortuitous.

It takes a little thought to grasp the significance of this. In Freudian terms, it can be expressed as follows. When the disturbing pair was presented, both words were unconsciously recognized, the phrase was unconsciously recognized and interpreted, it was unconsciously linked with repressed material, and steps were taken to prevent or at least delay recognition (in some cases the subject simply gave up . . .), all before the subject was aware of recognizing even one of the two words (for the unpleasant one was recognized even later). In more dynamic terms, we may suppose that at one of the very brief presentations the phrase keyed in, in releasing stimulus fashion, to some block of isolated material. The attention was not able to catch this mood, so the observation was dissociated from the attentive phase. Processes were then set going which actually deflected the attention from the sensory inputs from the machine. Besides giving us a startling glimpse of the time constants of the whole affair, the observation shows us that while an isolated mechanism has control of a mood it may take advantage of this, not only to produce overt behaviour, but also to set up specific obstacles to the scanning process of attention for an appreciable time to come. This failure to attend to a sensory input is sometimes called scotomization. It is one form of the mechanism Freud called resistance, to which we shall presently return.

A Cat and a King

Two more examples may be used at this point to illustrate the operation of intelligence, instinctive compulsion and rationalization. For this purpose we shall use the story of a cat, and the story of a king. The first story has a contemporary setting (Nicholson, 1957; Russell and Russell, 1958). The incident took place in a family consisting of father, mother, daughter, son—and female cat. The daughter was aged about fifteen at the time, the son about twelve. In this family, we had the golden opportunity of treating, at various times, three members—father, mother and son. A mass of clinical material showed that all the members of this family were much preoccupied in instinctive ways with the matter of deprivation of food, and with the relationship between mother and child, a general assumption being present that mothers find the demands of children excessive, and would be better off without them. These irrational principles had underlain the behaviour of the parents (obviously only to a limited degree), and had been transmitted in various ways to the children. At the time of the incident, these difficulties had been greatly eased in the son by psychoanalysis, but not yet in the other members of the family.

One day, shortly after the cat had produced kittens, these were removed by the daughter and hidden in another part of the house. She said the cat did not want them. The cat, refusing to conform to this view of her feelings, wandered about mewing intolerably. The mother and daughter could not deal with the situation. There was obviously something wrong, but a correct inference would have upset the rationalization for the daughter's original action, which the mother seems to have shared. They had therefore to interpret the cat's behaviour in some other way, and the most convenient was to ascribe to her their own preoccupations about food—these could then be rationalized as universal.* Mother and daughter therefore assumed that the cat was hungry, and gave her food.

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* One way of rationalizing or moralizing behaviour is to assume that it is universally characteristic of human individuals and even of all higher animals, and hence 'normal'. The father of another patient—a little girl with delinquent symptoms—appears to have rationalized a predatory attitude to property by declaring that he had watched birds struggling over crumbs: each of them, he said, always dropped its own crumb to snatch those of others. This was therefore 'normal' or 'natural' behaviour. Such a rationalization will not satisfy an individual of keen intelligence, for it is obvious that what is universal in some animal species need not be so in man, and that what is universal or 'normal' in man at this stage of evolution is certainly not necessarily rational; on the contrary, some forms of intelligent behaviour may be highly unusual and 'abnormal' at present.

The cat spurned this offering, and, like Ceres questing for Persephone, continued her search and her complaints. The humans decided that she did not like the food offered, and proceeded to tempt the cat with special tit-bits, which were equally spurned. How long this situation would have persisted is matter for conjecture; but at this point the son came home from school. Having had some analysis on the subject, he was aware of his fantasies, and able to notice and dismiss them as irrelevant to the actual situation. Unlike his mother and sister (or the patients studied by Halstead, p. 34), he was not compelled, in the face of repeated evidence, to cast about for every solution but the right one. He was free to act intelligently—to see what the cat's behaviour actually meant, and respond to it appropriately. He saw that the cat wanted her kittens, and effected a reunion. The cat settled down in perfect contentment, and peace reigned in the home.

So much for the cat; now for the king—James VI of Scotland and I of England, a strange mosaic of instinct and intelligence, whom we shall meet again in Chapter 9. We shall glance at his attitude to those unfortunates whom the seventeenth century called witches—and to whom our thoughts returned not long ago during the (happily abortive) career of Senator McCarthy.

In the later years of his English reign, King James's attitude to witches was exceptionally intelligent for his period and culture, and there is little doubt that he saved a great many lives. In 1616, for instance, he heard of a boy who suffered from fits. On this boy's accusation, nine people had been hanged as witches, and six more were in prison awaiting trial. James summoned the boy before him, and by dexterous examination caught him out and obtained an admission that the fits were simulated. The remaining 'witches' were released, and James gave his judges such a wigging that they became much more cautious thereafter. 'Only five witches are known to have been executed in the last nine years of James's reign' (Willson, 1956); this is a very low rate indeed by the standards of the time. In his handling of this case and of several others, James was free to make use of his knowledge of medical symptoms, logical properties of evidence and human behaviour in general, knowledge which he had acquired in other contexts. Many of his subjects shared this knowledge, but it was completely dissociated from the moods in which they heard accusations of witchcraft. Thus could James behave when he was free to use his intelligence.

In the 1590s, when James was still only King of Scotland, a series of

witch trials were held in Edinburgh, in the course of which allegations were made that the witches had been induced to employ the black arts against the life of the King. This, it was alleged, was at the instigation of a delinquent nobleman, Francis, Earl of Bothwell, who had in fact caused James a great deal of trouble. But the name of Bothwell would have other and far more powerful instinctive associations for James. The Earl was in fact the nephew of that Bothwell who had been the lover and eventually the third husband of James's mother, Mary, Queen of Scots. It was widely believed that at Mary's instigation this Bothwell had murdered her second husband, Darnley, James's father (cf. Chapter 9). The allegations about the witches and the second Bothwell would thus act as releasing stimuli for some of the most potent instinctive mechanisms in the King's brain, those echoing the theme of a father murdered with the complicity of a mother. Although the King, precociously learned in many spheres, was certainly equipped at this time with most of the knowledge and experience he was later to put to such excellent use in English witch trials, his actions in the nineties were very different. He hurried on the trials, he used every contemporary trick to extort confessions, and he actively encouraged the use of torture. His actions on this occasion were entirely instinctive. They were buttressed by the tissue of rationalizations making up his own book, *Daemonologie*, which in spirit and content was entirely medieval, and supplied elaborate excuses for instinctive behaviour in this context.

This instance shows how the same individual can respond intelligently or instinctively to similar situations, according to their releasing stimulus content. We cannot, indeed, assume that his behaviour in the later period was simply intelligent, and leave it at that. His attitude to his mother fluctuated considerably and he may have been prompted, on the later occasion, to a vicarious exposure of his mother's accusers. Thus some environmental conditions, relating suitably to the individual's instinctive mechanisms, may *permit* a limited operation of his intelligence. But he will only be really free for intelligent function when every particle of rationalization has been eliminated, and total integration restored to his brain. This has not yet been achieved in any human individual. To put it with British understatement, it is more than we can expect from a seventeenth-century king.

Unconscious Fantasies

Once we have seen their dynamic significance (p. 111), we can use Freud's convenient terms, and others derived from them. Any block (or component sub-block) of material dissociated from the personality can be called a *fantasy*. If such fantasies gain only sporadic and momentary control of behaviour, we can call them *unconscious*. Even unconscious fantasies can produce drastic effects on behaviour, colouring it and distorting it in many ways, unless we are vigilant. A state of mind which catches our attention off guard may influence an action, however momentarily, in such a way as to produce serious results later on. Freud's work is full of examples of this.

Sometimes an unconscious fantasy may even perpetuate itself in durable material. Any Londoner who wants to see an illustration of Freud's 'return of the repressed' immortalized in stone has only to visit Kew Gardens. Not far from the largest glass-house, there stands a crescent of stone figures. Each consists mainly of a head and bust rising from a simple stone column. The figures are evidently derived from those similarly truncated statues or busts of Hermes or the garden-god Priapus, which the ancients used to dot about their landscapes to encourage fertility among the plants therein. In order to convey this delicate hint, the statues (in ancient times) were always equipped with phalluses of generous and redoubtable proportions. The culture that constructed their modern equivalents at Kew had lost sight of the original function, and would certainly repress with Victorian fervour any such scandalous exhibitions (unless protected by the special licence accorded to the classics). There are no such phalluses at Kew. Hanging down each figure is a foliated leaf-like structure of considerable size, designed clearly to leave respectability doubly reassured, for what is not represented is hidden as well by this huge fig-leaf. But alas! you may repress fantasies with a pitchfork—they will return as impudently as ever. The huge leaves turn up at the end and seem at this point to thicken and concentrate, so that there rises—from exactly the right place on each statue—a charmingly ritualized phallus.

Proconscious Fantasies

More serious even than unconscious fantasies are those which gain

continuous control of behaviour for substantial periods, or displace intelligence altogether by a pseudopersonality (p. 113). Such fantasies we may call *proconscious* (*ibid.*). The idea is sometimes expressed by saying that such fantasies are *acted out*. Instead of distorting behaviour by momentary interventions, they completely determine it over continuous periods. It was one of the favourite aphorisms of Socrates that 'nobody deliberately behaves inappropriately'. The aphorism must have seemed highly misleading to his contemporaries (cf. Russell, 1956). It only gains point when we have envisaged the notion of proconscious behaviour—behaviour which is so systematic and deliberate as to appear conscious, but which is, in fact, quite as compulsive, irrational and automatic as unconsciously determined errors. It is just when people behave irrationally with an appearance of deliberation that we speak of acting out a fantasy.

An important research problem at present is that of determining the conditions under which fantasies are or are not acted out. This problem was barely touched by the work of Freud. He showed that many fantasies are so widespread as to be virtually universal in a given culture. This was an indispensable first step. But in practice we need to know how many people, which people, in which circumstances, act out these fantasies. It is valuable to know that most if not all of us have fantasies of murder, but it is more important in practice to know why some people actually do murder others. The question has countless implications. Unconscious fantasies may be socially dangerous in such contexts as driving or flying, where a moment's intervention may affect the lives of many people. But proconscious fantasies are more generally disastrous; Hitler was able, in a leisurely and systematic way, to go about the task of killing millions of people.

We have encountered in animals the phenomenon of intention movements (p. 87). We can conveniently use this word for a host of small verbal and postural indications in the behaviour of people we meet. But when are these hints really signals of *intention*? A skilled observer can detect in the conversation of others (and in his own) a number of irrational fantasies, expressed in the slip of the tongue or the tap of the foot at some indicative moment. But far more difficult is the problem of deciding whether any given individual in any given circumstances will act out the fantasies thus revealed. In some contexts unconscious fantasies of certain kinds are sufficient in themselves to justify precautions —considerable sophistication is shown nowadays, for instance, in the

selection of aviation personnel. But in other contexts unconscious fantasies may have to be accepted as inevitable and relatively tolerable, while the chance of their being acted out must be averted at all costs. A good interviewer, indeed, can distinguish the two cases intuitively (p. 33). The Duke of Marlborough was once sent to interview Charles XII of Sweden, in order to discover his intentions towards the powers of Western Europe. The Duke carried out his mission without a word of direct inquiry. He simply noticed the expression on Charles's face when the name of Peter the Great came into the conversation. This was enough to satisfy Marlborough that Charles was interested only in attacking the Russian Czar, and that the rest of Europe had nothing at the moment to fear or hope from Sweden. (Bolitho, 1939.) And of course Marlborough was quite right. But it would naturally be useful if we could find some regular criteria which could be applied by people less exceptionally able than the first great Churchill.

There is one source of guidance. Fantasies are liable to become proconscious when they can be rationalized or moralized in a manner acceptable to the person who entertains them. Anyone will unhesitatingly act out what he can with conviction consider rational or right. There are some individuals, such as Hitler, in whom, when adult, we can detect no trace of an intelligent personality at all. Such people live in a fantasy world. We only hear their names when historical circumstances fit the course of their fantasies so closely that they can appear to take control of events, which have, in fact, merely selected *them* for a conspicuous role. (The intelligent leader is in quite a different category. 'I thank God', said Elizabeth I, with perfect truth, 'I am endued with such qualities that if I were turned out of the realm in my petticoat, I were able to live in any place in Christendom'—cited in Neale, 1953.) That Hitler was able to act out his appalling fantasies was due, in two ways, to the behaviour of others: they provided the means of doing so, and they also provided the conditions which permitted him to act out, by appearing to support and confirm his whole fantasy system. In general, and in less extreme cases, where a course of action is supported by widespread social acceptance, specific *ad hoc* rationalization by the individual is rendered unnecessary, unless he is too intelligent to accept opinions merely because they are widespread (as is often the case with great writers). But there are many conditions in which people with an appreciable amount of personality can harmonize an irrational course of action with their personality sufficiently to carry it out without any qualms. This happens if the

rationalization for the action can satisfy them consciously and be integrated with their other behaviour, for otherwise it will be dissociated and become unconscious. This is the significance of a defence system (p. 113). Such a defence may be stabilized if the rationalizations are relatively subtle, or if the intelligence factors are of a low level, so that the individual does not notice discrepancies of any fineness. Or it may happen if the environment fits the rationalization so well as to provide a constant accumulation of circumstantial evidence in its favour—the terrible danger of temporary and spurious success.

The first task of therapy is to remove the rationalization for acting out a given fantasy. This may require the deliberate creation of conditions which will prove to the patient that what seems to him a generalization from experience is in fact a rationalization. One little girl was lying on the couch at a session, and complained, fidgeting, that the quilt on the couch was not large enough to cover her and that she was cold. The analyst made no comment, but fetched a larger rug, though the room was quite warm. But before the next session, the analyst put the fire on some time in advance, and carefully eliminated all possible sources of draught which could reach the couch. The patient again complained about the quilt, and the analyst this time did not bring the rug, but proceeded to analyse the complaint. The fact that the room was so patently warm and draught-free was a useful condition, for otherwise the patient could continue to argue that her fear of draughts was justified by their actual presence. (Such fortuitous corroboration of a fantasy cannot always be avoided. The argument must then be dealt with by firmness, and by pointing out the nature of previous arguments of a similar kind.) For about forty minutes, the patient used a variety of techniques to obtain the rug. 'She bullied, sulked, was sarcastic, patronizingly reasonable, explaining and demonstrating how inadequate the quilt was' (Nicholson, personal communication). She chiefly maintained that she could not be comfortable if there were draughts 'going through her legs'.

The analyst now commented that the patient's mother was extremely 'sensitive' to draughts. The patient at first denied it, but was told that the analyst knew it to be the case from personal observation. Eventually the patient began to talk freely and co-operatively. She had discarded the quilt, on the ground that 'she might as well be cold as a bit warm', but she now reassumed it, saying that it was not really so uncomfortable and was better than nothing. In the course of her talk, she recalled how angry she used to feel when her mother told her to put her arms under the

bedclothes 'because she would get pains in her shoulders if she didn't.' At first, the patient had put her arms outside again as soon as her mother left the room, but later she began to believe the story. The draught matter being thus disposed of, the patient proceeded to discover other, more serious instances of the same sort of influence. Thus her mother had suggested she should take sleeping pills to get a good sleep, adding: 'Well, don't blame me if you don't sleep well. I offered you the pills'. Thanks to the insight gained during this session, the patient determined not to let her mother addict her to sleeping tablets.

The girl in question suffered from delinquent symptoms, and it may be mentioned here that delinquents support their acting-out procedures by one or more of three general rationalizations: that the person they are dealing with is hostile to them, that he or she is friendly but unable to protect them from the danger they expect from other sources, or finally that he or she can be dominated by one technique or another. Lack of friendliness 'corroborates' the first rationalization, lack of firmness the second or third. In the treatment of delinquent children, they should never be permitted to act out their fantasies in destructive ways, for as long as they can do so their rationalizations about their environment are simply reinforced (and so, perhaps, are the instinctive mechanisms themselves— cf. p. 62). If the activities are blocked, while exploration is freely encouraged, the rationalizations can be tackled, and the patient can *communicate* the fantasies through speech, writing, drawing, acting or other non-destructive activities (cf. Chapter 8).

The first step in therapy, then, is the reduction of acting out, accompanied by removal of rationalizations and a direction to the patient to observe his own behaviour and that of others in the conditions in which he feels impelled to act out. Thus false self-esteem is reduced and real self-esteem is promoted by encouraging exploration, and by the resulting feeling on the patient's part that he has a means of controlling his actions. After this stage, the fantasies remain, still producing effects on behaviour of the unconscious kind, against which, however, the patient is now forewarned. So the *first* effect of analysis is an increase in unconscious expressions of what was formerly proconsciously executed. This accounts for the prevalence of Freudian slips in patients under analysis. The material, no longer rationalized, is dissociated and expresses itself in this way. But it is more readily accessible to attention, for patients not only make more Freudian slips (in speech or writing) but make more transparent ones and are able to notice them more readily after they have been made.

Communication between dissociated blocks is thus opened up. The more complete removal of fantasies—their inspection by the patient and integration with his other experience *as false*—can now begin. It is rendered difficult by the web-like interconnexion of dissociated blocks, which are intricately linked as wholes.★ The complete removal of fantasies has, of course, never been achieved in any human individual. Its achievement would produce, for the first time, a *Homo* indisputably *sapiens*.

Selection, Projection and Infection

Once an elaborate defence system has been built up, in which correctly interpreted experience is integrated with rationalizations (which have not been exposed as such by their failure to accord with reality) it becomes a matter of false self-esteem to maintain the defence. For this purpose, the individual will try to ensure that more and more evidence is provided in its favour. If he moves freely about his environment, he will find some evidence in favour of, but much more that conflicts with, his defence system. In fantasy (the rationalizing counterpart of imagination) the individual has complete control over the behaviour of others; he can cast them for any roles and write their lines and business for them as he goes along. In real life, they are liable to improvise their own parts, and this ad-libbing may change the course of the play. This was well illustrated in one of the films of Preston Sturges, *Unfaithfully Yours*, in which a famous conductor, under the spell in turn of each of the three pieces of music he conducted in a concert, devised fantasy courses of action for dealing with his wife and the man he quite incorrectly supposed was her lover. Each of these fantasies was presented to the audience in turn, and then, after the concert was over, the conductor was shown trying to act them out. Perhaps the most entertaining passage was his attempt in real life to execute the very elaborate murder he had carried out so smoothly in his fantasy. He was defeated at every turn by the unpredicted behaviour of his innocent and uncomprehending wife, not to speak of the mechanical apparatus he had planned to use for the purpose —machines never go wrong in that sort of fantasy.

So in order to maintain the defence, the environment, and especially the social environment, must be restricted in certain ways to make it

★ See Appendix 3, and Fig. IN.

fit in with the rationalizations and behaviour which the individual seeks to retain, and to present to himself as rational. There is an element here of the sort of behaviour we saw in one of Diebschlag's pigeons (p. 66) —the attempt to readjust the environment so that it will provide a pattern related to that of one's releasing mechanisms. The behaviour we shall now describe is the human equivalent of this, enriched by the implications of rationalization itself. It is a kind of parody of intelligent behaviour, designed to secure, not more and more freedom of action, but just the reverse. This process of active re-rationalization proceeds in three different but compatible ways (Russell and Russell, 1958). We may call them *selection*, *projection* and *infection*.

Selection is the simplest, and means simply restricting one's environment to conditions in which one's fixed behaviour can seem appropriate. There is so much irrational behaviour in the world, and such limited variation in the possible kinds of irrational behaviour, that this is much easier than might appear. One illustration is the choice of a marriage partner with a set of instinctive mechanisms and rationalizations exactly complementary to one's own. Thus arise stable marriages which are a sheer travesty of a real relationship, for the whole interaction of the partners is automatic and laid down at the outset (cf. p. 25). Every time one partner does anything, he or she provides his or her partner with perfect confirmation of the belief that 'this is how men'—or women— 'behave', and hence complete justification of her or his reaction. Similar principles apply to the choice of friends, associates and so forth, and in this way arise centres of cultural 'inbreeding' (to use a genetical analogy) which can split a society into sub-cultures, each uniformly exhibiting one set of fantasies freely acted out within it. This isolated environment may become difficult to maintain as people grow old, especially now that cultural conditions in general are changing so rapidly, and the defence is then liable to break down rather abruptly. As our control of non-behavioural factors for illness prolongs the individual lifetime, we find an increasing crop of breakdowns in older people. Some may hang on to their hard-won coherence by restricting their environment still further—for instance, by staying in one room and seeing as few people as possible. In the changing conditions of the modern world, permanent 'adjustment' to any one environment (always irrational) has become virtually impossible for anyone other than a hermit. Therapy of young and old must always take the form of introducing, more or less gradually, a greater variety of interests and social scenes.

Selection may be supplemented by projection. That is, the behaviour of others may be distorted into agreeing with the individual's fantasy world, by the simple process of misinterpreting it. The term *projection* is a metaphor. It means ascribing to others feelings or wishes in ourselves which are unconscious. Thus we may be said to *throw* a mood, as the ventriloquist throws his voice. Projection is in fact a complete confusing of information about our own state of mind with information about the state of mind of others. It is specially easy to illustrate when the object of the projection is not another human individual but an animal, whose behaviour is well understood. We have seen one example (the cat story on p. 115), and may glance at another, observed one holiday at a hotel (Russell, 1956). 'Among the guests was a woman with a small boy, whom she bullied unceasingly. . . . At meals or at play, he was constantly being visited with a stream of prohibitions and commands. Now in the hotel garden, a group of guests . . . were watching the following scene. The hotel dog, a terrier, was tied up to the gate. Beside it was a small kitten, recently produced by the hotel cat. The dog repeatedly seized the kitten's head in its jaws, and tried to carry it about. Admittedly, the performance looked somewhat terrifying; yet it was obvious that the action was very gentle, and the kitten neither scared nor hurt. It was clearly a stimulus for parental behaviour in the dog, especially for the behaviour of picking up a puppy, but owing to the incompatibility of sizes, the movement was somewhat unorthodox. The guests made various comments, but nobody interfered until the sadistic woman, crying that the wicked dog was trying to eat the kitten, snatched up the latter, none too gently, and transported him a few yards away. She then went into the hotel and thus missed the sequel; the kitten immediately returned to its foster-parent, and when last seen was tranquilly inserting its head in this terrible lion's mouth.'

There are, however, social relationships which cannot be selected restrictively—such as those with one's own children. In such relationships, the other parties may behave so persistently in ways which discord with the fantasies, that projection is liable to break down, as it might have in the above instance if the woman had not been able simply to leave the situation. Resort is then had to a third procedure, which we call infection. The other party is influenced in such a way as to *make* him or her behave in accordance with the fantasies; he or she is thus brought into the fantasy world of the infecting individual. This can be done with adults; compare Katisha's idea, in *The Mikado*, of training a husband to share her view of

her own perfections. But it can be done infinitely more easily with children. It is rather reminiscent of the ancient robber Procrustes, who either stretched or trimmed strangers until they fitted the fixed length of his famous bed. The other person is cast for a certain role, and then his personality is stretched and trimmed to conform with this, until he ends up with an identical fantasy system and a role which may be partly complementary (*vis-à-vis* the stretcher and trimmer) and partly identical (*vis-à-vis* others). As the process continues, the projections *become true*— in a sense. Once it is complete, the original individual's defence system is triumphantly vindicated. He was right after all: this is what the world *is* like! The victim of the process has become a living proof of this. It is usually important that the infector should not notice that he himself has brought this about, unless that, too, is a part of his own defence system—a belief that he can completely control his environment.

Infection is a not inappropriate term, for this is precisely the mechanism by which instinctive behaviour and its rationalizations are *transmitted* to other people. One form of special interest arises when the infecting individual has two incompatible fantasies, which conflict in exactly the same way as animal instinctive drives, competing for control of behaviour (cf. especially p. 112). This can be dealt with in the following manner, which is specially common in the behaviour of parents towards their children. The child is caused to act out one of the fantasies. The other is then acted out upon him. In the parent, the first fantasy is now unconscious; the second is proconscious, for it can be rationalized as a response to the child's enforced behaviour. We shall return to this very important process, but may give a simple example at this point, in which adults only were concerned. A man had two incompatible fantasies: an impulse to take off his clothes and exhibit himself, and a powerful prohibition of this, no less instinctive. On a certain occasion, this man found his wife and some other women bathing. He secretly removed their clothes, and then indulged in a variety of sarcasms at the expense of their embarrassment. Thus he caused the women to act out the first fantasy *for him*, and then, his conflict resolved, made them the object of an acting-out of the second. This is often the nature of practical jokes. Rationalization, which mimics intelligence, even has its own perverted version of a sense of humour (p. 35). This consists in seeing humour in things which are not really incongruous, but would be if the individual's own false assumptions about the world were true. For instance, integral to the defence systems of many individuals are beliefs that the two sexes are distinguished by

a host of behavioural differences which are in some way inherent and inevitable. (In fact there are very few *inherent* differences between the two sexes in man, and these are the immediate results of the anatomical differentiation.) There is nothing in the least incongruous in the idea of say, a discreet woman, or a man who loves his wife, but these 'incongruities' will seem uproariously funny to the individual whose defence system includes the assumption that women are inherently indiscreet or men inherently polygamous. In the hands of a great comedian, of course, such material can be used to generate real humour, if made to show up the incongruity of the beliefs themselves with fact. The property of infection, and the frequency with which, in any given culture, fantasies characteristic of this culture are acted out, gives rise to the curious literary phenomenon which we may call pseudorealism. We all know the innumerable novels and plays which describe with perfect accuracy the acting out of repetitive and monotonous fantasies, as if this were the last word in the story of man. In the hands of, say, Dostoievsky, this sort of thing can make great literature, because he makes it clear that something is wrong and that there must be some way out. In lesser hands, it becomes intolerably tedious because it is presented as the whole of reality. Great literature always provides fodder for the exploratory drive, bad literature provides *only* fuel for rationalization.

The three activities we have described may in general be called *defensive*. We may notice that they have a negative aspect. Besides an appetitive behaviour—choosing a matching environment, or infecting others in order to confirm one's false beliefs—there is also an aversive behaviour, that of avoiding any environmental events which might show up the weaknesses in the defence. This we may call *resistance*. It operates in just the same three ways. Selection of environments which match the individual's specialized defence system has the negative counterpart of avoiding those which do not. This may involve, for instance, the tragedy of avoiding someone with whom one is genuinely in love. Projection equally has its negative side—that of ignoring aspects of other people's behaviour which do not fit, and omitting to notice actions which would conflict with positive projections. Thus if you falsely ascribe meanness to someone else, you will not notice when they are behaving generously. Finally, infection includes trimming as well as stretching. Above all, resistance may take the form of preventing any exploration by others which would unmask one's own defence. This again is specially important in the relationships of parents with those vigorous explorers, young

children. We may wonder what happened to the little boy in the Hans Andersen story, who observed and reported the nakedness of the Emperor, when he got home; in many households he would have received sufficient correction to ensure that he did not repeat the indiscretion.

Prometheus and Epimetheus

Evidently rationalization has devastating social repercussions, and it is to social relationships that we must now turn. We have taken a good look into Pandora's box. We have seen that humanity, which has potentialities for progress inconceivable in any other animal, also has new and unparalleled sources of regress. Thus we can be flung back into a mode of function analogous in every respect with the instinct system of the lower animals, and which has no less regressive implications for social behaviour. The apple of the tree of knowledge has two sides. If for the first time we can envisage truth, we can also for the first time succumb to falsehood, and to a version of instinctive compulsion which specializes our behaviour with more completeness and detail than ever. What we gain on the swings of intelligence, we are constantly liable to lose on the roundabouts of rationalization. How is this perversion maintained? 'Philosophy, according to Bradley, is the finding of bad reasons for what we believe by instinct. But most of what we believe by instinct turns out, on analysis, to be merely what we happen to have picked up in childhood' (Aldous Huxley, 1934). Already in this chapter we have had a few scattered hints of how this may happen, and we might almost sum up the fate of a human individual as the sabotage of intelligence, the mechanism of progress, by over-specialization to a too *familiar* environment—that of his early *family* surroundings. But before we explore this notion (in Chapters 4 and 5), we must give some special attention to the social aspects of the human adventure. We shall find there much the same story—something profoundly new, progressive and exciting, and a perversion of it which can undo all its effects, and reduce the social adventure to a dismal automatism, grinding with clockwork futility towards destructive ends. Let us, however, end this chapter on a note of hope—real hope, not the delusive flutterer from Pandora's box. Our fate is not, like that of the animals, fixed and unalterable. Our evolution may be—for the first time for any species since

life began—in our own hands. If we can promote our exploratory activity, there is no reason in principle why we should not root out the apparatus of rationalization. There must be limits to the tenacity of Epimetheus: let our story be that of Prometheus Unbound.

Chapter │ 3 │

Social Relations and the Uses of Speech

'There are many remarkable things, and nothing more remarkable than Man. . . . He has learned speech and wind-swift thought, and how to live with his fellows. . . .'
Chorus of Theban Elders (Sophocles's *Antigone*)★

The Block on Social Exploration

The most remarkable event in human history has been the sudden florescence of science and technology in the last few centuries, in the cultures of Europe and its off-shoots in other continents. 'On a cosmic scale', wrote Lotka (1945), 'this development can be described as nothing short of explosive.' Just how explosive is well illustrated by *Fig.* 22, which deals only with events up to 1900. Our present rate of progress is difficult to grasp, so much are we beginning to take it for granted. Between the first and second drafts of this book, as if to emphasize the point, the first two satellites were launched, and others have followed between the second and last. What will have happened technologically by the time the book is in print, we shall not attempt to predict. The word 'explosive' may be misleading, for a physical explosion has a definite and destructive end-point; the growth of science and technology is a progressive evolutionary process, and may continue to accelerate indefinitely, unless it meets with some block or check.

This staggering advance affects only our control of the non-social environment—i.e., everything except our own social behaviour. If the advance of the social sciences were similarly plotted, we should find it

★ Translations are our own unless otherwise stated.

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lagging so far behind as to be hardly past the point reached by the non-social sciences in the eighteenth century. In our understanding and control of our own behaviour, we are little better than medieval—barely emancipated from the state represented in the other sciences by the adventures of the alchemists. Since all scientific inventions affect the social situation, and some of the latest ones are capable of affecting it in a drastic way, the imbalance between the two branches of science is becoming a matter of deadly urgency. There are also indications that non-social science itself is beginning to grind to a halt as a result. The atomic physicist Oppenheimer seems to feel that the theoretical conceptions of physics itself are beginning to need radical overhaul in the light of 'the rich disorder of our new knowledge', and that the impasse is unlikely to be bridged without a new synthesis of science as a whole, including behavioural science (cf. Editorial, *Nature*, 1956).

All this is a symptom of *a specific block on exploration in the field of social behaviour*. (For science and technology, together with the arts, are the cultural equivalents or extensions of the exploratory drive in the individual—cf. Chapter 10.) The history of non-social science and invention is an exciting record of unrolling progress, the vistas expanding at every step. But when it deals with social relations, history is indeed too largely, in Gibbon's phrase, a register of the crimes, follies and misfortunes of mankind. Progress, of course, there has been—as anyone would find who was magically transported for a few weeks even to the Athens of Pericles or the England of Elizabeth I. But it has been, by contrast with the curve of *Fig.* 22, a crawling progress, constantly broken by abrupt and catastrophic set-backs like the last two wars. Such progress as has been achieved has come in an uncontrolled way, without the decisive and deliberate guidance of science, and mainly as an inevitable outcome of the use of inventions of increasing scope and complexity. There has been a continual recurrence of certain basic social patterns of no progressive potential. Every great political revolution, for instance, begins with some new social idea, but relapses almost at once into a rat-race as old as our species. And one index of the progress itself has been an increasing complexity of rationalization on a cultural scale—that is, of political ideology. The more intelligent the individual, the more elaborate must be his defence system (p. 113), and the same principle holds good on the wider stage. In some early periods, after a successful revolution, it might be necessary only to forge a royal ancestry for the successful rebel and an illegitimate one for his victim. In the complex
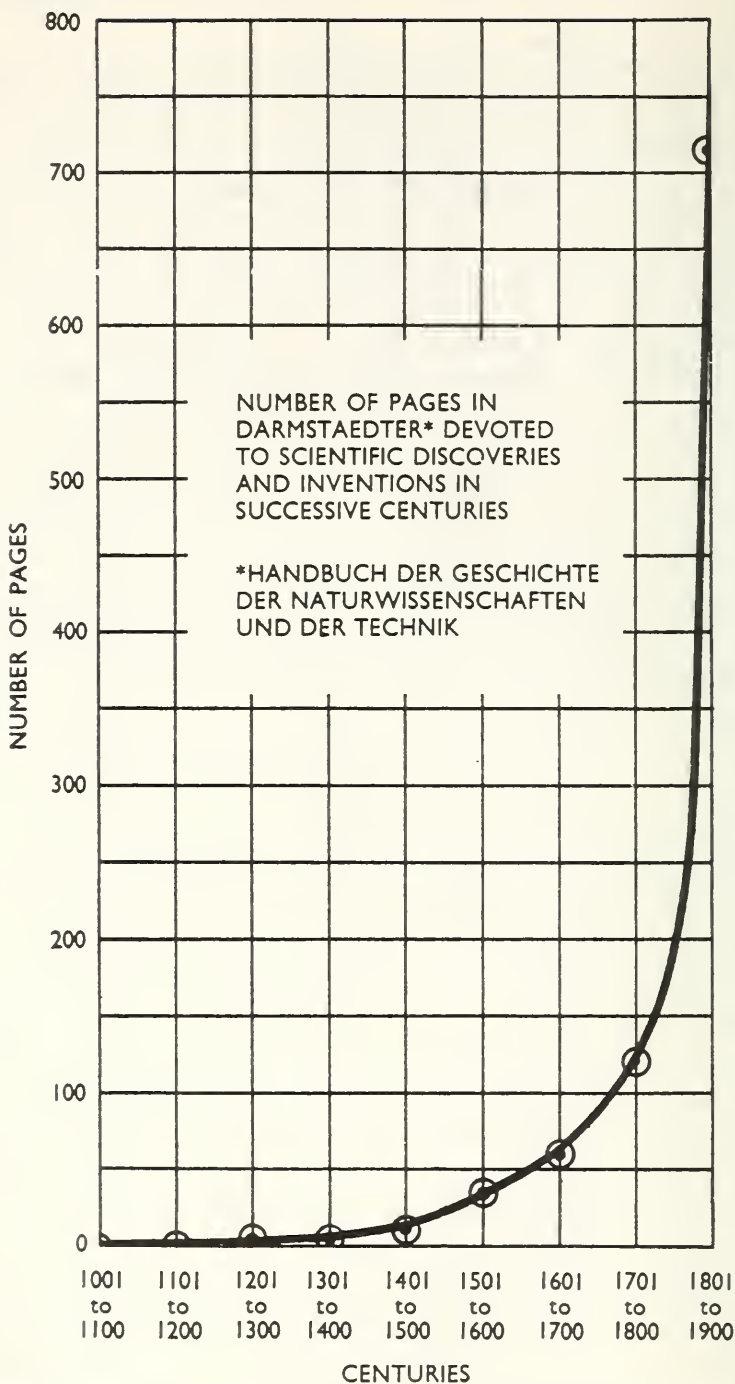
FIGURE 22—THE EXPLOSIVE GROWTH OF SCIENCE AND TECHNOLOGY
(From Lotka, 1929)

The explosive way in which science and technology have grown in recent centuries, measured by the simple but ingenious method of counting the number of pages devoted to particular centuries in a book on the history of science and technology. The curve is only drawn to 1900, but the progress of discovery and invention is obviously continuing in the same explosive manner.

culture of Augustan Rome, something more elaborate was necessary (Syme, 1939). But the ultimate development has been reserved for our century—that tortuous distortion of history and finally of language itself which Orwell analysed, in his novel *1984*, as the process of double-think—a process to be found in countries of every political complexion, and by no means the copyright of any one state. Such stupendous systems of rationalization and dissociation are apt to puzzle the inexperienced observer of political antics, who supposes that 'democracy' means 'democracy', 'freedom' means 'freedom' and 'science' means 'science'. The existence of these ideological nightmares is a sufficient indication that our social progress is still largely outside our control, and that there is still a heavy block on realistic exploration of the social field. If we are to govern our own destinies, this block must be lifted, and soon.

In the individual, likewise, social intelligence is far more thwarted and perverted in most people than intelligence in dealing with non-social matters. There may be the most dramatic dissociations in this respect. We all know the brilliant intellectual or technical virtuoso, who can display superb powers of abstraction and integration when dealing with mathematical manipulations or man-made machines, but who, faced by any social problem, leaves his brain behind in the laboratory or work-shop. A few scientists are like this, though not so many as we meet in fiction; on the whole, they are about as variable in this respect as the members of any other profession. But it is clear that, to a rather large extent, we are *all* like this. The point has been neatly made in another of Halstead's investigations (1951). His subjects had been of several kinds, independently classified before testing as 'normal', 'neurotic' and 'brain-operated'. His neurotic and brain-operated subjects showed considerable impairment in the various intelligence factors as compared with 'normals', when all were tested with purely non-social problems—geometrical visual patterns, etc. (see p. 34). But later he used as test objects a number of outlines of human faces, which the subjects were required to classify as gay, sad; beautiful, ugly; likable, unlikable, etc. He found that in *these* tests 'our normal individuals are just as irrational as our brain-injured individuals or as our psychiatric patients'. The irrationality took the form of ascribing gayness or sadness, etc., to the pictures on the basis of such arbitrary and fixed principles as the distance between the eyes or the length of the nose. In other words, these normal individuals, when dealing with other people, reacted to key stimuli, like animals. Inferences about other people's states of mind or personalities can only rationally

be made by response to complex patterns of intention movements and postures, a flexible, sensitive response—in short, by abstraction. Even if the key stimulus reaction happened occasionally to accord with reality, it would fail to do so at least as often, and so would be discarded by an intelligent observer of his fellows. It is true that moods such as gayness or sadness can be caught by a painter as subtle patterns of expression of the facial muscles—but not by lengthening or shortening the nose. Thus the great majority of humans, though regarded as 'normal' (accurately enough, in the sense that they are the great majority), show instinctive modes of reaction in *social* situations; the diagnosed 'neurotics' merely show a further stage of more generalized degradation. It is the social situation that strains the intelligence system, and most generally provokes instinctive reaction, rationalization and dissociation. This provides a clue to the origin of the impairment of intelligence, which we may suppose to begin in a social situation. The nature of this we shall explore in the next two chapters. We must prepare the ground for it by seeing what forms of social relationship are possible between human individuals (other than sexual and parental relationships, which are specially treated in Chapter 4). For this purpose, in turn, we must go back to the lower animals for a brief survey, which will provide some clues for threading the labyrinth of human social relations.

Competition in Animals: Fighting, Territory and Dominance

If we exclude the relationship between mates, and between parents and young, the social relations between individual lower animals of a given species are largely *competitive*. Each animal is a source of frustration or danger to every other, and primarily releases the drives of rage and fear. In the resulting competition for food, mates and other objects of appetitive behaviour, each animal tries to satisfy its own appetites, and prevent others from satisfying theirs. In most lower vertebrate species, breeding is restricted to special seasons of the year, and often to special breeding grounds where groups or colonies of the species assemble for reproductive purposes. Competition often obtains outside the breeding season, but it reaches special intensity in connexion with breeding. In this context, competition is for 'the objects or situations indispensable for reproduction' (Tinbergen, 1953*b*). These will include everything necessary for ensuring the successful breeding and rearing of young. The principal result of

competition in its simpler forms is to spread out the breeding units, or families, in space. This benefits almost any species, for it obviates a degree of crowding which would prevent *any* of the families from raising their young. The families making up any one colony will each have sufficient space, and any late-comers unable to establish a footing will be forced to leave and find another breeding ground. The spacing-out may have other advantages. For instance, in bird species whose eggs or young are so coloured as to be inconspicuous in their natural surroundings, spacing-out may be necessary as well for protection against predators (Tinbergen, 1952c). It is not much use having inconspicuous eggs and young if these are so densely crowded that a predator will stumble over one at every step. Tinbergen has observed that, since the Dutch herring gull colonies have been protected (against their most relentless predator, man), the birds have nested much closer together. The simplest expression of this spacing-out process is the formation of *territories*, each defended by an individual male or breeding pair. The bitterling (a small fish) lays eggs in a fresh-water mussel. A male of this species will defend the moving territory around the mussel. Much more commonly, a territory is a spatially fixed area, just sufficient for the purpose of rearing one family.

We must now consider what forms this competitive interaction may take (Huxley, 1934; Collias, 1944; Tinbergen, 1952a, b, c; 1953a, b, c). The crudest is that of outright, punishing fights. In most species, overt fighting has been replaced in the course of evolution by other mechanisms, but the success of these usually hinges on room for spacing-out by flight. If wild animals are forcibly crowded, as sometimes in zoos, lethal fights are to be seen. In nature, outright fighting is rare. It is an inefficient method of competition, which must go far to cancel out any of the latter's advantages. If all animals were like the legendary cats of Kilkenny, the world would be an empty place. (In one species of vole a watered-down Kilkenny policy has been adopted as a means of population control, but this is a quite exceptional case and in this troubled vole world there is little room for evolutionary progress.) In general, fighting occurs when animals are too close together. But it is worth noting that our own species is subjected to a degree of crowding quite unparalleled in the wild animal world, and none of the mechanisms now to be considered could possibly work in human societies.

Fixed territories provide one means of reducing or eliminating fights. As the territories are set up, each individual male (or pair) becomes *familiar* with his own (p. 70) and can react differentially when inside it

or in somebody else's. His behaviour is now controlled by the spatial circumstances. Inside his own territory, the appearance of a rival male releases his attack drive (by means of simple key stimuli), while outside it the *same* key stimuli release his flight drive. (This has been shown in some species by experiments with models.) It is not a simple switch, but a graded effect. The nearer the individual is to the centre of his territory (which may be represented by a nest he has built), the greater the ratio between his attack and flight drives when the key stimuli are presented. As he approaches the border, the ratio falls, until at the border the two drives are in near-balance. There then occur ambivalent and displacement postures which have been ritualized into threat displays (pp. 87–100). Once the territories are established, fighting falls off rapidly, for each male tends to flee when he finds himself in another's territory, nor will he be pursued far over the border, while at the border itself fighting is replaced by threat. A male seeking to remain for any purpose in the territory of another (e.g. in order to eat eggs) can sometimes do so by assuming an appeasement posture (p. 98), the reverse of threat (Morris, 1952).

While territories are being set up, some fighting may occur, though encounters may often be settled by the relative attack-flavour of the threat postures of the combatants. The size of each territory, in a given species, may fluctuate widely, permitting some flexibility in the population of a given colony, though there is an upper limit of crowding, after which the have-nots must leave. The main principle is 'first come, first served', but success in establishing a territory, and above all its size, will depend on relations of *dominance* between the rivals. The factors determining these are many and various, and not primarily a matter of size and strength. The chief arbiter is the relative and absolute level in each individual of the two drives of attack and flight; this in turn may be determined partly by genetic variation and partly by experience. The evolution of such *behavioural* dominance status helps to reduce destructive fighting, for the loser will break off a fight as soon as his own flight drive rises, and may often avoid one if his rival's display is sufficiently intimidating. Thus differences in dominance status serve to settle disputes without outright combat; this has been called 'stimulus ranking' (Chance and Mead, 1953). But once the territorial borders are settled, all other dominance factors are superseded by the over-riding factor of territory, and each fish's or bird's home is his castle (Braddock, 1949). From now on, any pools system based on the outcome of fish or bird encounters

(instead of on football matches) would offer little opportunity for the gambler: away wins are too rare.

It may be wondered why birds or fishes assemble at all at their breeding seasons (other than in couples), but there are advantages in aggregation, such as defence against predators and the chance of driving these away; also, for any one species, there is only a limited choice of ground suitable for rearing young. So far we have considered aggregation at fixed sites, where food and other necessities are uniformly spread, so that each territory is a fair sample of the conditions available. There are other forms of animal aggregation, in which fixed local territories would be an inefficient or impossible mode of sharing out the means of life or reproduction. Fixed territories are often (though not invariably) associated with the laying of eggs, which remain immobile for some time after they are laid. Mammals (and some species of each other vertebrate group—Medawar, 1953), bring forth their young alive. These are often mobile very soon after birth, or may be transported by their parents. Many grazing or hunting animals find it advantageous to aggregate in herds or packs, which must continually move on to 'fresh woods and pastures new', as they deplete the plant or animal resources of a given neighbourhood. Fixed territories would be out of the question for them. Similar problems arise for domesticated animals aggregated by their owners, when food is either rapidly exhausted at any one small place (as for cattle) or supplied at a common point (as for hens). In all these situations, competition must be organized so as to minimize fighting, without the provision of fixed spatial territories. There therefore arise *hierarchies* of dominance status, in which the individual animals of a herd assume definite ranks, entitling them to a greater or lesser share of the means for satisfying their appetite drives.

These social organizations may take different forms. In some lizards, there is an autocracy so perfect that all individuals other than the tyrant are of exactly equal status (Kramer, 1934): when two such cowed subjects meet each other, both turn tail and run for their lives. In hens (Allee, 1942) and cattle (Schein and Forman, 1955) there are linear peck-orders or butt-orders—that is, we can arrange all the animals of a group in a simple linear order, each animal being able to dominate all those below, and obliged to submit to all those above his own place on the line. In monkeys and apes more complex hierarchical arrangements are to be found. Sometimes the top male, or *overlord*, has access to all females at the times when they are fertile, and none of his subjects can touch them

at such times. In other arrangements the females are shared in accordance with rank. In yet others there is a complex interlinking of dominance hierarchies among the males and females.

In the evolution of dominance hierarchies, and in their actual formation in any one group in any one generation, we can trace a progression from fighting to mutual threat, and finally to a disappearance or great reduction of both fighting and threat, once the hierarchy is fully established. A successful dominance hierarchy results in a complex organized competition in which, as it might appear to the outside observer, each individual knows his place and just what he can get away with, so that the need for either fighting or threat has ceased. We are no longer concerned now with simple threat or appeasement reactions in transient encounters, governed by the spatial surroundings with which each animal is familiar. Each animal must now become familiar with its fellows *as individuals*, and not just react to them as bundles of key stimuli. Thus arises a social familiarization process. Each other animal is now connected with a particular pattern of flight and attack drives in the individual, which he need not re-discover at every encounter by a challenge to his fellow. Each animal may be said to have a definite *attitude* to every other, where an attitude means a rule linking a particular complex external situation with a particular complex mood (*Fig.* 4, p. 53) in the individual. But a dominance hierarchy is not a fixed and permanent thing. Changes in rank and status occur from time to time. We must therefore look more closely into the conditions determining status. Colonies of monkeys and apes are in many ways representative of dominance hierarchies in general; they also have special features of particular relevance to the study of human behaviour. So from now on we shall concentrate on the conditions of competition in a colony of monkeys.

The Monkey Colony

Our understanding of social behaviour in monkey colonies is based largely on the work of Zuckerman (1932), Carpenter (1934, 1935, 1940, 1942, 1952) and Chance (1955a, b; 1956; Chance and Mead, 1953). As they have all pointed out, it is still grossly inadequate, and research on this topic is one of the urgent priorities of science. The work of the pioneers provides a basis for its future development, and it will soon be clear to readers of this book how much better we should understand ourselves if

we knew more about our primate relatives. The monkey species of special interest are those that assemble in fairly large colonies, which range partly (like macaques) or wholly (like baboons) over open, treeless country. For there is reason to suppose that our own forebears passed through a similar phase at a crucial stage of human evolution (Le Gros Clark, 1955).

We must begin with a glance at one aspect of mating behaviour in animals. In lower vertebrates, time enters into breeding in two ways. One is the restriction of breeding to a special season of the year, related to the optimal conditions for growth of the young, which in most species are limited to particular seasons. The other is the interlinking of male and female behaviour and physiology which ensures that the act of mating will result in fertilization. This last can be achieved in two different ways (reviewed in Russell, 1952). Usually any given species exhibits one of these two mechanisms, though in certain conditions in at least one species the one can be transformed into the other (Chitty and Austin, 1957). In any species, the act of mating must be synchronized with the process of ovulation in the female, the release of eggs from the ovary (p. 40). In such species as rabbits and cats, ovulation in the female is automatically switched on (by means of a circuit partly nervous and partly hormonal) by the presence in the female's brain of a particular mood normally only induced in the act of mating. In other words, ovulation is geared to mating. The other method is simply the reverse— mating is geared to ovulation. This is called the oestrous mechanism, and we have seen it illustrated in the clawed frogs (p. 42). This gearing in turn may be done in two different ways. The female at or near ovulation may change her behaviour (as in the clawed frogs) in such a way as to permit mating. Or, as happens in many monkey species, the surface of her body may also change its appearance in such a way as to provide a powerful releaser for mating behaviour in the male. This is typified by the curious changes in the genital region of female monkeys—hardly attractive in our eyes—often called the 'sexual skin'. All three changes in the female—ovulation, appearance changes and behaviour—are perfectly synchronized because all are controlled by the same sex hormones. In some species (such as some frogs) there is usually only one oestrous or hot period for a given female in each breeding season. More commonly, there is a cyclical recurrence of the heat and the ovulation, known as the oestrous cycle.

When conditions for raising young are virtually constant throughout

the year, the need for a breeding season disappears, and breeding tends to extend over most of the year until it is virtually continuous. This has tended to happen in some domesticated animals (for which we ourselves provide constant conditions), and also in most species of monkeys and apes, which live in exceptionally favourable tropical or sub-tropical conditions. In such animals as the laboratory mouse and rat, although oestrous cycles continue throughout life, the *proportion* of each cycle in a given female within which mating is acceptable is very small. But in the evolution of the primates (tree-shrews, lemurs, monkeys, apes and ourselves) a dramatic change has occurred (Beach, 1947): the sex hormones, which control behaviour in both sexes so closely in lower vertebrates (*Fig.* 2, p. 45), slacken and finally lose this control (for details, see p. 268). One consequence is that female monkeys are sexually receptive or hot over a substantial proportion of their lives.

The implications of all this have been pointed out by Chance and Mead. In monkey colonies of any size, there are only the briefest intervals when no receptive female is available, throughout the whole life of the colony. Mating behaviour is almost or wholly continuously possible all the year round. In many vertebrate species (such as frogs and male seals) feeding and other appetite mechanisms are suspended during breeding, but in the monkey colony *all* appetitive activities, routine or reproductive, go on all the time. Entirely new and very intense conditions of competition obtain between the members of such colonies, which are fairly mobile in space. As a result, very efficient dominance systems have been evolved, which even so do not seem altogether to prevent fighting even in nature.

Let us consider, greatly oversimplifying, a colony with an established dominance hierarchy, in which we can allot ranks to the individual males—D1, D2, D3 and so forth. D1 is the overlord. As the young females begin to come into heat for the first time, he will take his pick. He may now threaten any other male who approaches within a certain distance of the female (or females). After a time, threat becomes almost unnecessary, his dominance status being readily recognized by the others. Inspection of the colony now gives the impression of a ritual series of movements of extraordinary intricacy. Some idea of this can be obtained from *Fig.* 23, which shows the movements of four members of a macaque colony in a relatively simple situation. At (A), D1 and an oestrous female are close together, mating at intervals; also shown are a younger male (D2) and a pregnant female. At (B), a pea-nut was offered through the

bars of the enclosure (at the spot marked x). As the figure shows, the oestrous female moved towards x; D1 made no attempt to forestall her, for oestrous females may be granted special status in the context of feeding. The pregnant female also approached the bars, but was at once greeted by the oestrous female with a threat posture. Meanwhile D2 had also approached nut and oestrous female, but as he moved towards the latter he was threatened by D1. This situation was unstable, and changed at once into that shown in (c): D1 came up to join his female, who was now eating the nut, while D2 and the pregnant female moved back until they were roughly as far from the dominant pair as they had been in (A). 'During the entire period of observation, the rapid movements of the eyes of the animals never ceased, and reached a peak just before the situation became once more stable, after the changes of position had ceased' (Chance and Mead, 1953). Thus the distance between each animal is regulated by definite and elaborate rules, based on the current domin-ance status of all concerned. The more dominant an animal is, the greater his freedom of movement. Those below him in the hierarchy must con-tinually watch his movements and keep their distance. Thus the flux of movement in a monkey colony has all the precision and intricacy of a ceremonial guard-mounting.

Chance and Mead suggest that these conditions are partly responsible for the expansion and enrichment of the cerebral neocortex in primates, which paved the way for the coming of intelligence, speech and ourselves. There are three aspects of this. First, the process of *equilibration* (as they call this perpetual dodging on the part of the less dominant animals) requires a hitherto unparalleled alertness and refinement in response to an ever-changing and highly complex situation. Second, these subordin-ates must acquire some control over their instinctive reactions. They are in an almost perpetual conflict, such as no other animals have to cope with for more than very short periods. Although many other factors are im-portant, sheer age, size and experience are bound to tell in the allotment of rank. Male monkeys reach sexual maturity years before they are full-grown and fully equipped with fighting teeth. If one of them prematurely challenges the overlord, while the latter is in a position to beat him, the outcome may be disastrous in one of several ways. The loser may be seriously mauled. He may be driven out of the colony. If he escapes these fates, both his fighting and his mating behaviour may be impaired (as considerable evidence suggests): as we might say, he may lose his nerve, and with it his chance in the future. It is not just a matter of 'he who
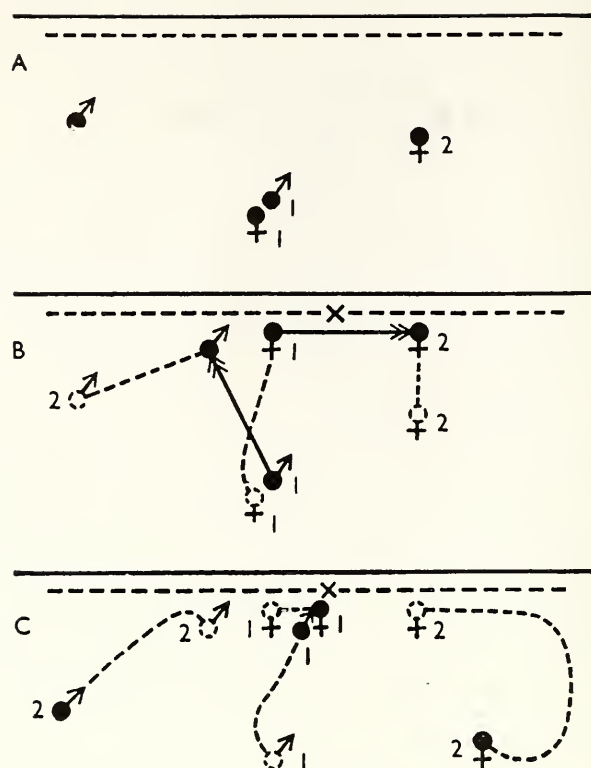
FIGURE 23—MANOEUVRES IN A MONKEY COLONY

(From Chance and Mead, 1953, Fig. 3)

This is a schematic representation of events observed in a colony of macaque monkeys at the Dudley Zoo. The positions of four individuals are shown at three successive stages of observation (A, B and C).

$\male^1$ = D1, the dominant male

$^2\male$ = D2, a younger male

$\female^1$ = an oestrous female

$\female^2$ = a pregnant female

– – – – = tracks of the animals

———» = threat directed by one animal towards another

— — — — = bars of the enclosure

X = spot where a pea-nut was offered through the bars.

When an animal's movement is shown, his or her symbol is shown dotted at the starting-point of the movement, and fully blacked in at the destination point.

fights and runs away lives to fight another day'. If the young male is to preserve his chance of a successful challenge, he must not fight at all until the time comes. For literally years he is in a triple conflict. He is impelled to approach the oestrous females. He is impelled to attack the overlord when the latter is near them (as we know from the behaviour of the overlord himself, who automatically threatens any male seen near his females—*Fig.* 23). And he is impelled to flee from the overlord. He must suppress the two former drives, with such efficiency that he can carry out the complex manoeuvres of equilibration. Thus may have been elaborated those circuits mentioned earlier (p. 101) by means of which primary drives are controlled by a supervisory mechanism.

There is one other mechanism at the disposal of the subordinate male. The emancipation of sexual behaviour from hormonal control has resulted, in monkeys, in the use of sexual movements for purposes other than mating (Chance, 1956). One such act is that of *presenting* the ano-genital region to another male, who may or may not mount the presenting animal. This is the movement whereby the *female* invites copulation. In either sex, presenting can serve as an appeasement posture, whereby the attack drive of the dominant animal is inhibited. Thus the subordinate who steps out of line can save himself by prompt presentation. Socially, this is a useful additional safe-guard against fighting. But the subordinate can choose only between equilibration and appeasement, and must contrive to satisfy appetites other than that for oestrous females as best he can in this dangerous world. And all the time, he must be watching for his chance.

How does he know when his chance has come? To understand this, we must return to the overlord. *He* has complete freedom of movement within the colony, and perfect licence to pursue his own appetitive behaviour of any kind. He is under no kind of conflict or stress. Further, dominance in the extreme case implies the elimination not only of fighting but even of threat. A dominant animal must be ready to threaten at need (as in *Fig.* 23), but the occurrence of threat (always a blend of rage and fear, however little of the latter—p. 97) is itself a sign of imperfect dominance. If dominance is complete, subordinates will never provoke the overlord to threaten, for they will equilibrate successfully and never approach within the permitted distance, at least without instant appeasement. So the mark of a completely dominant animal is a virtual absence of fear and rage, as the mark of a completely successful dominance system is a virtual absence of any trace of overt conflict

between animals. 'Violence is the last refuge of the incompetent' (cf. Asimov, 1953).

Hence the successfully dominant animal has a characteristic appearance and stance, which permits the trained eye to pick him out at once. He is in perfect health, which shows itself conspicuously in a perfectly groomed coat, the external mark of complete bodily comfort (p. 55; cf. Clarke, 1955; Carpenter, 1952; Chance, 1956). This health is a result of complete freedom to execute routine behaviour and complete absence of stress. His posture, in motion or repose, is quite relaxed, and his movements leisurely and deliberate. He displays what we may call complete *self-assurance*. If he threatens at all, he threatens less than those next in the hierarchy threaten *their* subordinates; for he has less occasion to. In our own species, everyone knows the difference between a completely assured person, and one who is constantly erupting into bluster and spite—who is, as we say, defensively aggressive. Self-assurance implies success in every kind of constructive pursuit (p. 55). At the level of human intelligent behaviour it is the social expression of self-esteem. The self-assured person can turn on rage when appropriate, as the monkey overlord can threaten at need, but he is never provoked compulsively into rage, for he is not normally exposed to frustration. It is sometimes suggested that aggressiveness is in some way associated with efficiency of appetitive behaviour; on the contrary, it is an invariable sign of frustration, and 'the last refuge of the incompetent'.

To return to the monkey colony; we must now notice the obvious corollary. A successful overlord, whom it would be dangerous to challenge, is recognized by his health, well-groomed look and relaxed, confident posture and movements. Conversely, it is now obvious how the ambitious subordinate can recognize an overlord who is 'slipping'. The signs will be any traces in the overlord's actions of hesitancy or clumsiness or slowness or jerkiness or a dozen other indices of slightly diminished health, comfort and physiological efficiency, which will also soon appear in the state of the surface of the body. In particular, any degree of tension in movement or posture is recognized as a *submissive* symptom. The subordinates themselves, while still subordinate, are normally characterized by their poorer health, unkempt appearance and tense, jerky movements. An animal showing such symptoms will be challenged, and usually with success; and this seems to be the principle on which the hierarchy is established and modified. The principle is well recognized in practice by lion- and tiger-tamers, whose lives depend

on their grasping the point. No experienced tamer will go near his animals when he is in the slightest degree under the weather—even with the mildest cold or head-ache—for he knows it will appear in a slight loss of assurance in his movements, that the animals will recognize this, and that he will lose his dominance status, and with it his immunity from attack. Conversely, it is precisely by his assurance that he can acquire this status in the first place and maintain it thereafter—a status which confers on him the role of overlord over huge animals, one of which could kill him with little effort (Hediger, 1955).

The perception and assessment of minute differences in the degree of self-assurance of another animal, from moment to moment, is based on response to complex patterns of small intention movements—obviously a form of abstraction, and very unlike the reaction to a few exaggerated releasers. This capacity is present in other mammals besides the primates. In many mammal species the movements expressing moods have been multiplied and refined—no longer, as in the more instinctive animals, few and exaggerated and supported by releaser structures. The facial muscles in particular become more elaborate, and are capable of very variable expression even in wolves (Schenkel, 1947). But these refined responses to patterns of intention movements are perhaps at their most subtle in primates, and this may have been the third factor governing the growth of the neocortex.* There are indeed two other species which have had to develop similar capacities for very similar reasons—the subordinates in our own domestic hierarchies, the dog and the cat (cf. Lorenz, 1952; Russell and Russell, 1958). Of these two, the cat excels at equilibration, and the dog at appeasement.

Co-operation and Communication

Competition is not the only social relationship between lower animals. There is also a certain amount of what can be called, roughly, co-operation (Allee, 1941; Tinbergen, 1953a). The behaviour of a pair or group of animals may be co-ordinated to serve a common goal. But it is important

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* In savage human cultures, which in many ways show a more or less complete reversion to the instinct system (see Chapter 10), deformities are often produced to serve as the equivalent of releasers. Charles Darwin, in his account of the 'Beagle' voyage, comments on the practice of tattooing the face: 'it is . . . probable, that the deep incisions, by destroying the play of the superficial muscles, give an air of rigid inflexibility.'

to realize (as Tinbergen makes quite clear) that co-operation of this kind is quite automatic, being achieved by elaborate linking-up of the instinctive actions and reactions of a group of animals, so as to produce, say, synchronized mobbing of a predator, construction of communal nests, or the achievements of the social insects, such as ants and bees. For instance, in those bird species where both parents rear the young, the alternating tours of duty at incubation and foraging, which we can observe in a couple, are arranged automatically by neatly synchronized rhythms of activity in the two parents. We shall not devote much attention to this kind of instinctive co-operation. The performances of bees and ants have almost hypnotized many people into admiration and misinterpretation. They are not really remotely comparable with our own. They are of great interest as illustrations of the complexity that can be based on the instinct system (cf. Vowles, 1955), and often offer remarkable parodies of human affairs—when a swarm of bees moves, for instance, the new site is chosen by a process deceptively reminiscent of a majority vote (Lindauer, 1957). But they offer little relevant information for the understanding of co-operation in man.

For with the coming of intelligence and speech, there emerged a new form of true co-operation of unlimited potential. The achievements of instinctive co-operation in any one animal species, though flexible in detail, are closely specified in outline; the potential achievements of true human co-operation are infinite. For this new type of organization has the properties of a progressive evolutionary machine, to which precisely the same arguments apply as in the individual. From now on we shall use the term co-operation (unqualified by 'instinctive') to refer to the process unique to intelligent organisms. The essence of co-operation lies in *communication** between individuals, chiefly but not exclusively through the medium of language. Information is transmitted from one individual to another (usually reciprocally) *as information*, which is not to produce a compulsive effect on the behaviour of the second party (as do the social signals of instinctive interaction, p. 98), but to provide his intelligence system with material on which to base rational behaviour. This material, then, will be assessed and integrated with that he already possesses, and so furnish means for introducing further variety and flexibility into his own behaviour. Such free availability of information *between individuals* parallels the free availability of information *within one individual's brain*, which is the essence of intelligence. As in the latter

* See Appendix 1; also p. 91.

case (p. 112), this does not mean that individuals are to spend all the time telling each other everything that comes into their heads, but that *nothing* available to the intelligence of one is withheld from the other if it can be of the slightest use. *Concealment* between individuals corresponds perfectly to *repression* within one of them (p. 111), and has the effect of *dissociating* individuals in a manner comparable to the corresponding process in the individual brain (p. 110). By the potent device of communication, the already prodigious capacity of the individual brain can (in principle) be multiplied by the number of members of our species since it appeared on earth. Thus humans can co-ordinate the constructive behaviour of each for goals promoting the welfare and progress of all. The whole of human progress has been achieved by this means.

In co-operative relationships, each person wishes every other to explore as much as possible, and the progress of the pair or group is furthered by the increasingly intelligent behaviour of each member. The at present ambiguous word 'love' can best be used to mean *a wish to promote the exploratory drive of another person*. The first results of really falling in love are seen in a heightened consciousness in both partners (p. 14). The sexual form of love is indeed a special case, in which the two people wish, in particular, to communicate sexual feelings to each other, and thus experience them ever more richly. But the general principle applies equally in non-sexual contexts. The parent who loves his or her child is the parent who wishes the child to become increasingly intelligent, and hence independent. What we call 'showing affection' is really communicating love itself—that is, conveying to the other person a wish to communicate with them in general. We can dismiss at the outset any notion that it is ever a part of love to conceal, or to prevent the loved person from *any* form of exploration.

The difference between intelligent communication and instinctive interaction is exactly like that between exploration and conditioning (p. 57). The communication of information *increases* the freedom of action of the recipient, while the process of an instinctive interaction reduces his freedom, and engenders a compulsive reaction. As in the case of intelligence (p. 102), communication need not be considered as a cold, intellectual process. On the contrary, it is the only way we can share the richest emotional feelings—that is, information about ourselves.

Leadership and Self-Assurance

The co-operative performance of a group of individuals may involve a certain division of special behaviour between the members. In instinctive co-operation, this is a relatively fixed division of labour, which in insects is often pointed by differences in actual body form within the species. In true co-operation, such distribution of activity need not be fixed. On the contrary, the more readily the members can interchange roles, the more flexible is the group performance. This is one aspect of the value of increasing the intelligence, including the versatility, of each party to the co-operative enterprise. But at least at our present stage of evolution, there may be limits to this in practice. In particular, some members of a group at any time may be in possession of more information than others, either through longer experience (as may apply in the relationship of parents with children) or through specially high levels of the factors of intelligence. Thus arise the notions of creative *leadership* and hierarchies of *responsibility*. It may then be useful for those at high levels to transmit, to those at lower levels, not necessarily the complete information upon which a decision is based, but merely the decision itself. In such situations, the recipient may act on his instructions. His readiness to do so should depend on his assessment of the intelligence and information at the leader's disposal, and also of the leader's co-operative intentions. This we call *trust*, and it should be continuously open to review, as the hierarchy itself should be continuously (even momentarily) adjustable. Herrick (1924) has painted a fine picture of how such a hierarchy might work. 'And the power exercised by these dominating units in a well-ordered society . . . is not that of a tyrannical overlord . . . but a natural regulatory control developed within the community itself. Those individuals whose broader vision and executive ability command the respect and confidence of their fellows come by common consent to occupy strategic positions in the social organization with benefits to all concerned'.

Nobody with the slightest experience of practical affairs could mistake this for a portrait of any existing human society, but it would be perfectly applicable if co-operation were the only relationship between human individuals. As things are, many implications lie hidden in the phrase 'command the respect and confidence of their fellows'. The instinctive analogue of leadership is to be found in lower animals; there it is an almost invariable prerogative of the competitive overlord, as we might well expect (Collias, 1944; Carpenter, 1952; Chance, 1955*b*).

One function of the monkey overlord is that of preventing competitive fights between his subordinates (Zuckerman, 1932). He is like the Duke in the first act of *Romeo and Juliet*—'On pain of torture, from those bloody hands Throw your mistemper'd weapons to the ground'. Or, if he is more completely dominant, he is like Othello, who does not have to rely on threats or official status—'Keep up your bright swords, for the dew will rust them'. As long as there is a vestige of competition in human relationships, leadership must be achieved and maintained in the form of dominance. Now the expression of dominance lies in a particular posture and appearance, which we have called self-assurance (p. 144). Such an assured manner is an essential for leadership in human affairs. It has two significances. For those disposed to co-operate, self-assurance in the leader, as one expression of his real self-esteem (p. 104) and hence of the intelligent and informed nature of his decisions, will inspire trust. Firmness is not incompatible with friendliness or affection (p. 122), which the leader must also display if he is to secure the support of such people. This may be specially important in parental behaviour, for the parent has often to assume the role of leader with his or her children, though he or she should constantly encourage the child's own independent judgment, for a co-operative leader will delegate as much responsibility as he can without prejudice to the common progress. Meanwhile, for those not disposed to co-operate, the leader's self-assurance is a sign of his dominant position, and hence produces instinctive reactions of fear. Such people will have a competitive attitude, one of submission, fear and suppressed rage. The slightest drop in the leader's self-assurance will cause such people to attack him, just like the subjects of the animal-tamer (p. 145). As long as such people are with us, or (to be more accurate) as long as nearly all of us sometimes display competitive attitudes, an assumption of dominance status is indispensable for leadership. Thus in human affairs self-assurance has a double role, being to some a communication of capacity, and to others a releasing stimulus for submission.

Lack of assurance takes the form of expressions of compulsive rage and fear (cf. p. 144). Those without real assurance may try to simulate it, often successfully to some extent (but, as Lincoln put it, not with 'all the people all the time'). Much remains to be learned here, and most people now have an opportunity for the leisurely observation of such aspects of human behaviour. Sitting before the television set, we are not obliged to take an active part in the proceedings, and can concentrate on the observation of intention movements, often in more revealing close-up than

is available in ordinary conversation. Television is potentially a valuable guarantee against the persuasive demagogue. We do not imply that such observations should be made in any witch-hunting spirit. A 'television personality' is not necessarily assumed, it may be the real personality of the person viewed, legitimately emphasized without distortion for the benefit of a large audience. Nor do intention movements of rage or fear, combined with a surface assurance, necessarily imply that their exponent cannot be trusted. We shall explore in Chapter 7 some of the deceptively similar ways in which very different people can behave. But provided we do not jump to conclusions, the observation of public figures on television may be an important means of learning to distinguish between true and false self-assurance, between the leader and the 'actor'.

Legitimate acting (i.e., acting as an art on stage or screen) can be done in two different ways. The actor can carefully calculate how a given personality in a given mood would behave; if expert, he may be very nearly, but rarely quite convincing. Of course this procedure may be adopted deliberately and stylized, as in the Comédie Française or the D'Oyly Carte Company before the Gilbert copyright expired. This provides the unusual and interesting experience of a production frozen for decades and centuries. The other way of acting is quite different. The actor vividly imagines himself as a particular personality in a particular mood; all his actions, however trivial, then seem perfectly inevitable.* Really great actors of this kind are rare, and fortunately usually professionals; it should therefore be possible regularly to detect the real mood of a demagogue who is seeking dominance status for purposes other than co-operative leadership.

False self-assurance, in the absence of the real thing, may be further bolstered by the establishment and exploitation of instinctive releasing mechanisms—we may then see processes reminiscent of the evolution of releasers. Examples are the uniforms of Göering and Mussolini, or the extraordinary measures adopted in industry and commerce to convey the exact status of men who cannot convey it themselves. Some of these are discussed by Odle (1957), who shows that such status indicators may be quite divorced from the matter of co-operative responsibility.

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* This must not be confused with semi-hypnotic techniques by which actors are sometimes trained to get artificially into a limited range of crude and inarticulate moods. The difference is essentially that between intelligence and instinct. After our account in Chapter 2 of intelligence and instinct, attention and dissociation, it should be easier for actors and the public to discriminate between the two approaches in any given instance.

The ultimate absurdity is reached in a story he tells (by no means atypical, as we have heard from other sources) of an executive who 'shortly after promotion, came in one morning to find that his old carpet, which he liked very well, had been replaced overnight by a more expensive one. On ringing up the company stores to ask for his old one back, he was told: "Sorry, sir, we can't do that. You're entitled to the new one." ' This sort of thing goes on side by side with elaborate networks of co-operative communication and responsibility (cf. Meier, 1956). Some kinds of key stimuli used as status indices have profound implications for the history of human societies. A good deal might be written, for instance, on the role of the beard in human history. In periods and cultures where a substantial beard is an index of status, control may tend to be vested in the relatively old (as well as, of course, in males). The young, always likely to favour new developments, may be unable in such a culture to make their presence felt. In a conflict between two cultures, success has often fallen to that in which the men are clean-shaven by custom, for it will tend to be more progressive and efficiently co-operative. An interesting instance is the Norman Conquest. The Anglo-Saxons wore beards, the Normans were clean-shaven.* Without this condition, William could hardly have secured his Dukedom by his own efforts in his early teens, despite his bastardy and in the teeth of strenuous opposition. Similarly, the expansion of the Roman Empire accompanied the practice of shaving and the elevation of young and able nobles to high office. Many other status indicators could be mentioned. Strachey (1931, p. 120) wittily describes the successive role of armour and wigs in distinguishing the gentleman from his inferiors (including 'a curious transition period (*temp*. Marlborough) when armour and wigs were worn at the same time'). Then came the French Revolution. 'A fearful moment! Wigs went.' There remained the barrier of manners. But all these indices, unlike beards, were independent of age and even sex. Joan of Arc wore armour, and anyone who could afford it wore a wig; manners, with assiduity, could be learned.

The real leader is largely independent of such trappings, though he will

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* In picking out this factor or symptom, we are not, of course, suggesting that the Normans succeeded in England and in the Mediterranean simply because they shaved! Nor do we wish to sentimentalize these conquistadores, of whom it was said in their time:

> Cold heart and bloody hand
> Now rule the English land.

However, we may notice that Anglo-Saxon military technique was specialized and out of date, notably in its neglect of archers and cavalry (cf. Oman, 1929).

exploit them to the full where necessary. One of the most self-assured people in history was Queen Elizabeth I, whose official status was seriously counter-balanced by her sex, and who was surrounded by thrones emptied by rebellion or assassination. She could radiate good will, she could display prodigies of ambiguity, she could unleash tempests of controlled rage and she could express the most unequivocal firmness. The trust and confidence she could inspire in her leadership was a miracle in the circumstances of her reign—a miracle we can understand better when we read her incomparable speeches. Who could distrust her competence to dispose of the Armada, while listening to her Tilbury speech? 'I know I have the body of a weak and feeble woman, but I have the heart and stomach of a king, and of a king of England too, and think foul scorn that Parma or Spain, or any prince of Europe should dare to invade the borders of my realm. . . .' And of course, the trust was rational—it was her genius for finance and diplomacy, coupled with her capacity to delegate responsibility to the right people, that saved England from foreign invasion and ideological civil war and kept it balanced between rival totalitarian forces within. Nor was she less effective in maintaining her dominance status. Examples are countless, but we may glance for illustration at her relations with James VI of Scotland over his right of succession to the English throne after her death (cf. e.g., Strachey, 1928; Neale, 1934; Willson, 1956). It was a cardinal point in her policy not to acknowledge any successor. The reason she gave plainly herself. In 1587, James was trying to strike a bargain: he would turn a blind eye to the execution of his mother (Mary, Queen of Scots) by Elizabeth, if the English Queen would acknowledge his right to the succession. Hoping to have it both ways, his ambassadors suggested that Mary should be spared on condition she assigned her own right to James, naming him as Elizabeth's successor. Gloriana spoke her mind. 'By God's passion, that were to cut my own throat, and for a duchy or an earldom to yourself, you or such as you would cause some of your desperate knaves kill me. No, by God, he shall never be in that place.' (Henry III of France and William of Orange were assassinated in Elizabeth's lifetime, and Henry IV of France not long after her own—natural—death.) This, then, was her policy, and its reason. Some time later, she heard that James was sending embassies to Continental countries to obtain support for his claims to the succession. She wrote him a letter, from which we shall extract a few phrases as perfect illustrations of unambiguous, self-assured firmness in speech: '. . . And be assured, that you deale with such a kinge as will

beare no wrongs and indure no infamy . . . Looke you not therefore without large amends I may or will slupper-up such indignities . . . And so I recommend you to a better mynde and more advised conclusions'. Nobody was ever impudent twice to Elizabeth—nobody, that is, except the Earl of Essex. In dealing with him, she was involved in a perverted sexual way—a devastating handicap, as we shall see in Chapter 6—and made insecure by her great age. She thus felt a lack of assurance in his presence, and was finally driven to the last refuge of the incompetent— to cut off his head.

Real leadership implies co-operative and rational goals, as was evident throughout the career of Elizabeth I. In a wholly instinctive society, a very different sort of dominance hierarchy may arise, based solely on the relative strengths of attack and flight drives and the conformation of individuals to the instinctive pattern of the society. At the end of the last war, one of the Middle Eastern countries faced the problem of disbanding the Nazi youth movement (Curle, personal communication to C.R.). It was decided to employ the youths on constructive social tasks. When this was done, it was found that those at the top of the dominance hierarchy in the movement soon disappeared from this rank or from the movement itself, *unless* they showed such exceptional gifts for co-operative leadership as to be suitable leaders in the new situation. Though leadership is always exercised for co-operative ends, these may not necessarily be constructive (p. 55)—they may be exclusively concerned with tackling emergencies. These may often arise through previous human mistakes. Freedom of action in the individual is a function not only of intelligence but also of the environmental situations within which it acts; the progress made possible by intelligence is achieved by so changing the environment that more and more alternatives lie open for the future. A series of mistakes reduces later freedom of action, till eventually there is a complete restriction to some course which might never have been chosen rationally, but may now be the only path through the bottle-neck to increased freedom of action in the later future. So it is with human societies, and although war is never rational it may be forced upon us in this way. In such an emergency, real leadership can still be shown. The obvious example is Sir Winston Churchill. For about a decade, he repeatedly advised his countrymen how to solve the German problem, at first without any bloodshed at all (simply by enforcing German disarmament), later with relatively little. Each lost opportunity closed some avenues and reduced the freedom of action of the British

Government and their future allies. By 1939, there was only one path open
to a civilization such as ours, and Sir Winston, having done everything to
avert the need, took the lead in steering us through it, a lead which, as
everyone knows, was followed with prodigies of co-operation. This
situation, indeed, will never arise again, for with the present weapons
available humanity can afford no more world wars, and therefore no
mistakes leading to them: such a conflict would now be summed up, with
complete finality, in the old Castilian proverb—'the conquered conquered,
and the conqueror destroyed'.

Co-operation and Emergency

It is a glaring feature of human behaviour that co-operation is so much
easier to secure in an emergency (cf. p. 14) than for constructive pur-
poses. The effort we spend in combating fire, famine, flood, pestilence
and human enemies is rarely bestowed to any comparable extent on co-
operation for ends which will let us all enjoy ourselves more, for exploring
the varied and versatile possibilities of constructive human intercourse.
Constructive co-operation does of course exist; there can have been few
greater leaders in human history than Serge Diaghilev or Arturo Tos-
canini. Science itself is the supreme example, but we know that even
science reacts to the stimulus of emergency in a way which shows how
much more it could be doing all the time. It is possible that co-operation
began its career, in our near-human ancestors, as a measure for defence
against rival groups. One savage tribe in the Far East, when the British
provided protection against other tribes, simply dispersed into the
jungle, abandoning even the rudimentary culture they had formed, as
though co-operation were no longer necessary. It certainly seems at
present that emergency makes a more forcible appeal to the individual
imagination. People will co-operate instantly to save life who would
never dream of doing so in order to enjoy themselves more. It has been
a constant theme of fiction that the human species will never unite as a
whole except in response to a non-human or extra-terrestrial invader.
A series of experiments was recently carried out in America on groups of
boys who thought they were *only* having enjoyable holidays in a summer
camp (cf. Anon., *Nature*, 1957). The boys were organized into separate
teams, which were housed and occupied separately. Competitive games
were started between the teams, and soon resulted in the development of

appreciable hostility between members of the rival teams. This did not take any drastic form, but appeared as a tendency for members of one team to have nothing to do socially with members of another. The experimenters tried to break up the divisions, thus created, by pleasant social occasions. These attempts signally failed, for the occasions were simply used as opportunities for 'the rival groups to berate and attack each other'. The experimenters now arranged for such emergencies as a breakdown in the camp water-supply. The two teams worked together to find and remedy the trouble, and this and similar situations finally breached the division, so that 'from choosing their "best friends" almost exclusively in their own group, many of [the boys] shifted to listing boys in the other group as "best friends" '. The experimenters seem to have felt that this desirable change was the result of the two teams working on a common task; but we may suspect that the emergency nature of at least some of the tasks played an important part.

Failure to co-operate for constructive purposes is associated with two other modes of social interplay, which tend to make social relationships increasingly specialized and automatic, and to block all creative advance of the species as a whole. The first of these is the competitive relation, which we have seen operating in lower animals. The second is something new, which we may call *exploitation*.

Exploitation

'The corruption of the best is the worst.' We have had our first example of this in the study of rationalization, the perversion of intelligence; we are to have our second in the study of exploitation, the perversion of co-operation. The two social relations can be shown to be related even in their rudimentary instinctive forms in lower animals (Littmann *et al.*, 1954). But with these we are not concerned, for exploitation, like co-operation itself, only attains its full development with the coming or speech. We can usefully describe the three great modes of social relation in terms of the concepts of goals and executive behaviour (p. 57). Co-operation occurs when two (or more) intelligent individuals, engaging in free communication, develop systematically related goals whose realization will be of advantage to both. It is now a matter of convenience which of them performs the executive behaviour designed to realize which goal; usually, each performs executive behaviour

designed to realize both goals. This is very crudely pictured in *Fig.* 24A. Competition occurs when one individual prevents another from realizing the latter's own goal. This may be done in two ways: by controlling the individual's behaviour, so that he cannot carry out his own executive behaviour (*Fig.* 24B1), or, more subtly and radically, by an influence on the individual at a higher level than that of executive behaviour, which causes him to fail to formulate his own goals altogether, let alone carry them out (*Fig.* 24B2). Finally, exploitation occurs when one individual *uses* another to perform the executive behaviour designed to realize a goal of the former. This again may be done either by influencing the executive behaviour of the exploitee (*Fig.* 24C1), or by influencing his goals in such a way as to *substitute* those of the exploiter (*Fig.* 24C2).* The notion of influence at the two different levels—executive behaviour and goals—is roughly equivalent to that of compulsion and what is called nowadays, in extreme form, brain-washing—the production of a docile slave. It is well summed up (near the start of his forty-eighth chapter) in the words of Gibbon: 'The freeman of antiquity might repeat with generous enthusiasm the sentence of Homer, "that on the first day of his servitude the captive is deprived of one half of his manly virtue". But the poet had only seen the effects of civil or domestic slavery, nor could he foretell that the second moiety of manhood must be annihilated by the spiritual despotism, which shackles not only the actions but even the thoughts of the prostrate votary.'

The relationship of exploiter and exploitee is a sinister parody of that composed of two freely co-operating people. The goals to be realized in this parody depend on one brain alone, the executive behaviour on the other. The exploitee has become little more than an appendage of the exploiter, but the latter in turn is completely dependent on his slave. Such a relationship may be called one of *dependency*. It has been summed up in Beckett's play *Waiting for Godot*, in which two characters appear in the roles of master and slave. The slave can act but cannot think; the master can give orders, but cannot either see or move. The portrayal is extreme, but shows to what the system tends.

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* Lest anyone think there is something vaguely magical about *Fig.* 24C2, we may mention that it could equally well serve as a formal diagram of the effect of certain viruses on the bacteria they attack. The virus, by transmitting false information (in this case coded in certain chemical substances), causes the bacterium to make virus substances instead of its own.
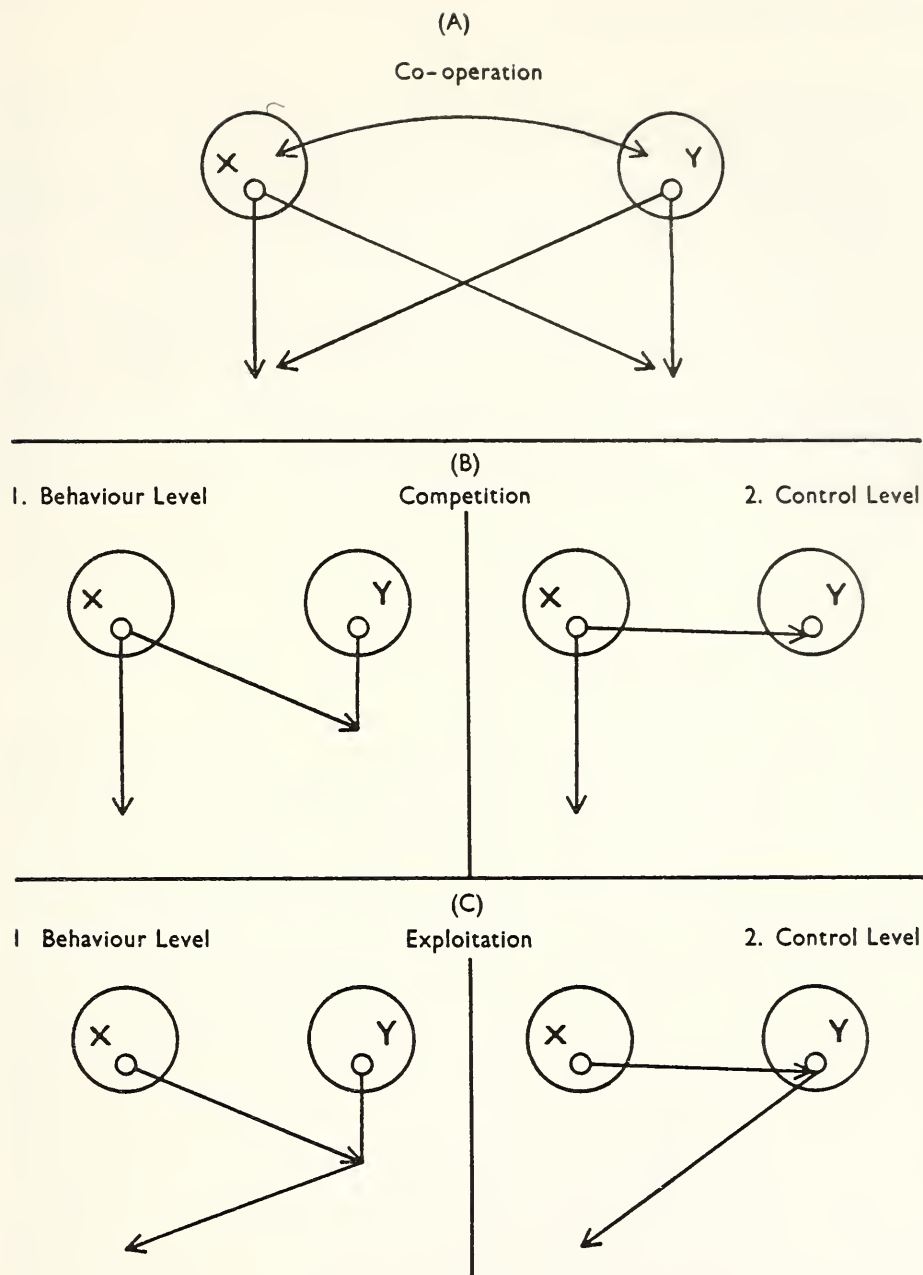
FIGURE 24—CO-OPERATION, COMPETITION AND EXPLOITATION

The three main modes of social relationship between human individuals.

The large circles represent individuals (called 'X' and 'Y' in each case). The small circles within them represent goals, wishes or control mechanisms. The arrows represent overt executive behaviour.

(A) Co-operation. X and Y exchange information in an intelligent way, and as a result co-ordinate their goals, so that the executive behaviour of each is related to the interests of both. This is represented by the destination of the arrows; the space underneath each individual's circle is supposed to be related to him, so that an arrow terminating in this space means executive behaviour related to him. In this case arrows from each individual terminate in each space.

(B) Competition.

1. Behaviour Level. X performs his own executive behaviour, but also acts to prevent Y from carrying out *his*.

2. Control Level. X performs his own executive behaviour; at the same time he influences Y in such a way that Y relinquishes, not only his own executive behaviour, but even his own goals.

(C) Exploitation.

1. Behaviour Level. X does not perform his own executive behaviour; instead he diverts the behaviour of Y to conform to his (X's) goals.

2. Control Level. X now influences Y in such a way as to change Y's goals, and hence Y's executive behaviour, to conform to his (X's) goals.

In the cases of competition and exploitation, the termination of arrows in the space under X does not necessarily mean executive behaviour in the *realistic* interest of X (see p. 167).

The Nature and Consequences of Competitive-Exploitive Relations

In what follows, for purposes of presentation, it is impossible to avoid speaking of human individuals as if they were either wholly co-operative or wholly concerned with competition and exploitation. Though extreme forms can occur, such a simple melodrama of good and evil is a travesty of the vast complexity of human relationships. 'One man in his life plays many parts', and the skein of competition, exploitation and co-operation, both within each individual and in interpersonal relations, will take more unravelling than we can hope to do in this book. The great majority of humans form a sort of floating vote: in most of us it is possible to bring out the best or the worst. There is no harm in using such terms (so confusingly parodied in moralization—p. 109), for co-operation between individuals, like intelligence in each, is the mechanism of progress and expansion; if we speak of good, we mean progressive; if we speak of evil, we mean specialization. For convenience, we shall now discuss roles which any one of us can assume for greater or lesser periods, in one relationship or another, as if they were wholly and exclusively filled by individuals. As the account proceeds, we hope to introduce, into this steel engraving of black and white, some of the shades and tints of real life. But first, the outline.

Competition and exploitation in their human forms are closely related, as appears from the most cursory study of *Fig.* 24. If the behaviour of the exploitee is to be diverted from his own goals to those of the exploiter,

independent action on the exploitee's part, aimed at realizing his own goals, must be blocked. The total control of another human individual has both positive and negative sides—stretching and trimming (p. 127)—to fit a Procrustean bed. If the exploitee continues to act as cat's paw, an exploitive attitude predominates in his user; if he shows the least sign of independence, the user's attitude at once becomes competitive, or *envious*.

The whole mechanism begins with a very low self-esteem on the part of the would-be controller, who believes himself utterly incapable of intelligent action on his own account or in co-operation with others. Excessively low self-esteem issues in rationalization, and eventually in the building of a defence system (pp. 107, 113). The maintenance of the defence becomes essential for boosting a false self-esteem. Every defence system tends to include the postulate that the individual displaying it can completely control his environment, including other people. This necessitates the infection of others, their introduction into the fantasy world of the defence, with which they must behave in complete accord (p. 123 ff.). Any sign of independent action on the part of another person, with whom the rationalizer is in contact, pierces the bubble of the defence and threatens false self-esteem (and the more complete the defence, the more inexorably any trace of real self-esteem disappears). Such independence therefore arouses competitive envy—for envy means a competitive attitude connected with an utter disbelief in one's own capacity to succeed, and hence a complete concentration on bringing about the failure of others. To assuage his own envy, the rationalizer must reduce the independent action of his fellow. The presence of this independence, with its premise of success, shows that the other person has some real self-esteem. At this point—there is no help for it—we must resort to letters of the alphabet. (A) is the rationalizer whose fortunes we have been following. (B) is the other person. It now becomes necessary for (A), in order to retain his own false self-esteem, to destroy the real self-esteem of (B). So far, the process is competitive. But (A) can now restore his own false self-esteem by exploiting (B)—by controlling (B)'s actions positively, by causing (B) to act *for him*. He can do this if he can sufficiently reduce (B)'s real self-esteem, so that for the future (B) feels unable to act for himself, and obliged to act for (A). (B)'s self-esteem will then be a function of his success in realizing (A)'s goals, and he becomes (A)'s devoted slave.

This reduction of (B)'s real self-esteem can be done in several ways. The most obvious is terrorization. If (B) is sufficiently afraid of (A),

he becomes incapable of doing anything that will arouse (A)'s envy—
that is, anything that will lead to his own success. Within (B) there is
now a fatal conflict between his self-confidence and his self-security
(p. 104), for he will regard as dangerous any action of his own that is
likely to increase his self-confidence. He will therefore feel that the *only*
safe way for him to do anything at all is to do exactly what (A) tells him.
The fear of envy emerges in many myths and legends. It underlies the
ancient concepts of Hubris and Nemesis. Hubris originally meant simply
success or prosperity, and was expected inevitably to provoke the envy
of the gods—the destruction of the prosperous one by the process called
Nemesis. The typical story is that of Polycrates, ruler of Samos, whose
career seemed to be one of unbounded success. His ally Amasis, King of
Egypt, warned him to appease the envy of the gods by throwing away
his most precious possession; accordingly, Polycrates threw his favourite
ring into the sea. But soon afterwards a fisherman caught a fish which
had swallowed the ring, and presented it to his master Polycrates. Hearing
this, Amasis broke off his alliance with dismal forebodings, and shortly
afterwards Polycrates made an incautious expedition to the mainland,
where he was caught and put to death by a Persian provincial governor.
Later, the myth was overlaid by moralization, and the word Hubris
changed its meaning, at first to 'inordinate self-conceit based on success',
and later still to 'impious behaviour resulting from this'. In other words
envy could be appeased, it was now felt, by retaining a low self-esteem
and obeying the instructions of the gods—that is, by submitting to ex-
ploitation.

Another approach for (A) consists in lowering (B)'s self-security
vis-à-vis a third party, and making him feel incapable of safety without
(A)'s *protection*. Thus arises the implied compact underlying the dominance
of the robber baron, who was supposed to defend his people against out-
siders in return for their readiness to do all his appetitive behaviour for
him. Of course, it often turned out that they had to do the aversive
behaviour as well, under the baron's orders, which might not necessarily
be the most efficient. This mechanism (like so many others) is illustrated
in Orwell's *Animal Farm*, where the animals have driven out the farmer
Jones largely by their own efforts. As the pigs begin to exploit the other
animals more and more, any protests are met by the argument that only
the ceaseless efforts of the pigs protect them from the enemy's return—
'Surely, comrades . . . there is no one among you who wants to see
Jones come back?' Of course, this second mechanism is a more subtle

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form of the first, the envy of (A) being ascribed to a third party, and (B) encouraged to redirect his fear to the latter. There is a sort of return of the repressed in the gangster's definition of 'protection'.

Thirdly, there is a mechanism which we may call *investment*. (A) persistently does all (B)'s executive behaviour for him for a long time, constantly implying that (B) is incapable of doing it for himself. (A) need not in fact do it *all*; he need only exaggerate the importance of what he does do. 'I toil and slave for you,' he says, 'and where would you be without me?' (B) might in fact be perfectly well off without (A), but he may not be permitted to realize this. When the treatment has continued long enough (A) can gradually do less and less, until (B) is doing everything, while still under the impression (which he is never allowed to forget) that *he* is the exploiter.

It must be obvious that all three of the gambits we have considered are specially easily applied by parents to their children. Such a relationship can, however, exist between adults. A particularly good example is supplied by Dostoievsky's novel, *The Friend of the Family*, whose quotation in full, unfortunately impossible here, would be the best possible illustration of the ideas in this section. The story has all the novelist's characteristic pace and verve, and despite its sinister undertones it is primarily high comedy. It concerns an amiable and simple-minded colonel, who for many years has ungrudgingly and at great expense supported his widowed mother, her large crowd of hangers-on, and in particular a creature of her last husband, called Foma Fomitch Opiskin. The relationship between Foma and the colonel is one of unsparing exploitation. It is not enough for the ignorant and incompetent Foma to be supported in luxury without doing anything for his keep. In addition, he requires complete control of the estate, and forces the colonel to minister unceasingly to the fantasy view of the world which Foma has built up, and in which Foma is a genius and a saint. The colonel is accused at every turn of the most brutal and selfish exploitation of his mother and of Foma himself. He is made to feel that they are working incessantly for his good, and that without them he would be lost. After plenty of this treatment (for which he has been prepared by his mother from infancy), the colonel is terrified above all else of Foma's departure, the threat of which is held over his head at the least breath of insubordination. As part of his duties, the colonel is compelled to sacrifice the welfare of his children (by a wife now dead) and eventually that of the girl he loves. At this point, for the first and last time, Foma goes too far. He ventures to slander the girl to

the colonel's face, and the result is one of the most agreeable scenes in literature. (But alas! Foma recovers his position in the most adroit way.) This brief summary brings out several further points. First, an exploitee can be used to exploit others in turn, all for the fantasy benefit of the original exploiter. Second, as long as the colonel appeases Foma, he is spared the most extreme outbursts of attack by his mother, of which he is irrationally terrified; Foma therefore seems to *protect* him. Third, a really co-operative relationship tends to open the eyes and free the bonds of an exploitee, for such a relationship must promote the activity of his exploratory drive. It will therefore be a prime object of the exploiter to prevent such a relationship.

The status of the exploitee in an exploitive relationship is essentially that of a tool or piece of property. Hence arises a network of rationalizations envisaging human individuals as things which can be *possessed* or owned. (The notion of human persons as machines in the non-scientific sense arises here—p. 15.) An important special case is the conception of the exploitee as a *weapon*, for he may be used to act out attack fantasies for his owner. One consequence of this is a fear of losing possession of the weapon to a rival exploiter, who could use it against the first. Thus appears a totally new kind of competition—competition between two exploiters for the use of the exploitee. It is the situation depicted in *Through the Looking-Glass*, when the Red and White Knights fight for the possession of Alice. ('I don't want to be anybody's prisoner', was *her* comment.) To return to the alphabet, (A) competes with (C) for the privilege of exploiting (B). Two obvious instances may be mentioned at once. First, the eternal triangle of two men and a woman or two women and a man—notice the old definition of chivalry in a man as the impulse to protect a woman from every *other* man. Second, there is the competition between parents for the opportunity of exploiting a child—notice the use in law of the term 'custody'. From the point of view of our original exploiter (A), it makes no difference whether (C) is really a rival exploiter, or someone prepared to co-operate with (B)—(A) will project his own motives on to (C) in any case. (In fact, the White Knight, when he won, was helpful to Alice, and guided her on her way.) In either event, (A) will be *jealous* of (C). This is, in particular, the significance of sexual jealousy (p. 300). Thus (A) is *envious* of (B) if he begins to behave other than in accordance with (A)'s goals, and *jealous* of any third party who encourages him to do so. These two concepts are only intelligible in the light of the specifically human

developments of competition and exploitation, and should on no account be confused with the simple competitive attitudes of the monkey overlord (p. 143).

The Instability of Human Societies

As long as the competitive-exploitive and co-operative relationships occur side by side (or rather intricately interwoven), no permanently stable system of social organization can be set up to regulate social interplay on the lines of an animal dominance hierarchy. This is the core of the present crisis in human evolution. If we were wholly co-operative, no such need would arise, and if we were wholly competitive and exploitive a stable system could be developed—though at the cost of specialization and inevitable extinction. Attempts are made by exploiting individuals and groups to regularize their competition by means of such conventions as the diplomatic rules governing relations between later medieval kings (or sometimes—let us face it—those of what is called professional etiquette).* But these attempts are doomed. Among individuals, as we have seen, co-operation acts to break up exploitive relationships. In human society, the accelerating progress of science constantly disrupts hierarchies as they are formed. The masses cannot be kept in the ignorance necessary for their subjection if they are required to operate complex technical contrivances. The typewriter helped to emancipate women. Dictators and oligarchies have again and again been faced with the dilemma: if they fail to make use of science, they lose the battles of competition; if they do make use of science it changes social conditions out of all recognition, and finally undermines the power of the rulers. In individual psychotherapy, a patient may seek information for irrational purposes; but the more true information he is given, and the more he is induced to explore, the more certainly will his irrational goals be disrupted and dissipated. In just the same way, any culture that fosters the scientific approach for competitive-exploitive purposes is bound to change in the direction of co-operative activity. That is why we can confidently expect the whole competitive-exploitive way of life to go the way of the dinosaurs in the long run. Up to the present juncture, in any large-scale contest the best man was bound to win: the German

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* These rules may, of course, have a co-operative and responsible application—there are white knights as well as red ones. Difficulty arises when the two are confused.

Nazis inevitably lost the last war. But the technology of destruction is now moving uncomfortably fast relative to progressive social changes, and, as we have said (and many other people too), a third world war would have *no* winner. We must at all costs achieve the evolutionary transition without any such pangs. It is therefore specially important now to pinpoint the conditions which make for such delinquent acting-out. In human society, the inevitable failure to develop a stable hierarchy entails the risk of any crowded primate colony (p. 135)—it is liable to issue in murder, massacre and war.

Murder, Massacre and War

Provided certain other factors are present, which we shall presently consider (p. 166), we can lay down *six* conditions under which, in interpersonal relations, murder is liable to occur:

1   An exploiter will tend to murder an exploitee whom he can no longer control, or a prospective one whom he cannot begin to control: this is the murder through *envy.*

2   An exploiter will tend to murder a rival exploiter: this is one form of the murder through *jealousy.*

3   An exploiter will tend to murder a third party who tries to cooperate with the exploitee, and hence liberate the latter: this is the other form of the murder through *jealousy.*

4   An exploitee, current or prospective, will tend to murder his exploiter if he feels unable to escape from the relationship in any other way. It may happen, either from the outset of an exploitive relationship, or at some point in its course, that the exploiter has no real power to injure the exploitee, so that his envy is innocuous. In such circumstances, an exploitee who retains the fantasy that the exploiter is dangerous, and hence retains a fear of his envy, may take one of two courses. He may continue to be exploited, moralizing this by means of the concept of *loyalty.* Or, under the impression that it is the only safe way to leave the relationship, he may murder the exploiter, moralizing this by means of the complementary concept of *revenge.*

5   An exploitee may in some special cases have made so many irretrievable mistakes that he really can only cease to be exploited by murdering the exploiter (cf. p. 153). This is the murder through *desperation,* typified by the execution of the Earl of Essex (pp. 153, 479).

6   An exploitee may appease his exploiter by acting out a murder on his behalf, if he feels this is his only means of safety. This very important category is the murder for *appeasement*. Curiously enough, the murder of revenge may be seen as a special case of this, since it is an implicit tribute to the power and dangerousness of the victim.

The first three types of murder are due to irrational rage, or low self-confidence (since nobody would exploit if they felt confidence in their own capacity for success); the last three types stem from irrational fear, or low self-security (for they would not arise if the individual felt capable of protecting himself without violence).

There remains only straightforward killing in literal self-defence (7). This we may separate from all the others as homicide, though any type of murder may be *rationalized* as self-defence. Moreover, some of the types may be rationalized or moralized in terms of others; thus types 1, 2 and 3 (which include the commoner forms of *crime passionnel*, justified in some countries by what is accurately called the law of the jungle) may be moralized as revenge. When to this catalogue we add the further statement that all murders are implicitly or explicitly connected with the matters of property and sex (cf. Chapters 6 and 8), we have an exhaustive system of classification which may perhaps be of interest to the law and the police.

Within a country or similar cultural grouping, some of these types of murder find their counterparts in class massacres of correspondingly different kinds. One or two examples of each type may be given:

1   Terrors practised by formerly all-powerful groups after a disturbance, e.g., those of the Ku Klux Klan.

2   The Stalinist and Nazi purges.

3   The massacres of liberal or progressive groups which are a monotonously recurrent theme of political history.

4   The September Massacres in the first French Revolution.

5   Many assassinations, the peasants' revolts, the Jacqueries.

6 . The same as (3); some participants (usually the inciters) act through jealousy, the rest for appeasement. The latter soon have cause to regret their action. The Terror in the first French Revolution would be a good example.

Careful inspection of these examples will show that in most actual instances the motives are usually mixed (and also the victims—liberals tend to be liquidated in any purge or massacre). Even in individual murder, more than one motive may be present, and this becomes more and more

probable as the scale of killing rises. Much the same could be said of wars, except that here, of course, the two sides may have different motives, except in the case of wars between rival exploiters. Thus in the Chinese opium wars, the Europeans were acting in accordance with (1), the Chinese in accordance with (5). Ruling groups are always liable to initiate wars for one of the first three motives, while inducing their subjects to participate for one of the second three. The mechanism of appeasement is the most dangerous of all, for it is nearly always rationalized as self-defence against the opposing side, fear of the rulers being redirected. One powerful counterbalance to the mechanism of appeasement is provided by firm and co-operative leadership, for reasons which we shall now examine.

The Conditions for Delinquency

We have mentioned that certain conditions must exist if the various motives we have classified are to issue in violence, and this is true in general for all forms of delinquent behaviour. These conditions amount in general to the absence of *unambiguous* co-operative leadership. Our categories of murder have shown two general types of motivation. In both alike, actual violence is precipitated by ambiguity. In the first three categories, murder will be averted if the sometime or potential exploitee, or his co-operative saviour, is unambiguously and categorically firm in maintaining his independence. In the second three categories, the outburst will be prevented if the potential delinquent *feels safe*. Liberals have usually been massacred by their beneficiaries because they did not convey an adequate sense of firm leadership. Today it is the scientists who are liable to occupy this position. Unless prepared to exercise the firm leadership now required of them, they must expect to be hated and attacked. Ambiguous, incomplete dominance invites attack from would-be exploiters; ambiguous, half-hearted leadership invites attack from terrified potential exploitees. We may return at this point to the experience of lion-tamers (p. 145). Their charges are liable to violent outbreaks due to rage or fear. In the former case, they will attack the tamer who appears unable to maintain a more dominant status; in the latter case, they will attack a tamer who is unable to calm their fear of (say) an unfamiliar situation. Either kind of outbreak can be averted by complete self-assurance on the tamer's part (p. 149). In nature, the most dominant members of an animal society often serve as sentinels. This is an automatic

consequence, as Professor Lorenz has pointed out to us, of the fact that the most dominant animals are precisely those least readily frightened. If a very junior member of a herd or flock sets up an outcry, none of the others pay attention, for such an individual will easily become agitated in non-dangerous situations (like the boy who cried 'Wolf!'). If a dominant animal shows alarm, there must be something serious afoot, such as a dangerous predator. Absolute calm on a leader's part therefore serves to assure his followers that they are in no danger. In the human case, calm leadership dissipates fears, and hence one source of violence, while it also serves to keep the ill-disposed in order. Conversely, a leader who shows fear provokes attack from would-be competitors, and also attack by terrified followers acting on a fantasy version of the time-honoured principle which causes incompetent officers at the front to be shot in the back by their men. The occurrence of murder, massacre or war therefore always means a lack of firm leadership, and hence an *ambiguous* situation. A prime example was the last war. The Nazis were prompted to act out their delinquent programme on account of the indescribably ambiguous behaviour of their opponents, who failed to make their dominance status clear.

Competition, Exploitation and Infection

We must not for a moment suppose that exploitation always means the execution by the slaves of *realistic* appetitive goals of the masters. That this is not necessarily the case is attested by one of the solidest pieces of evidence available to science—the Pyramids of Egypt, for whose construction thousands toiled, and which conferred no conceivable advantage on those who commissioned them, other than the spurious one of an increase in false self-esteem. It is here that we reach the core of the human predicament. Exploitation, for whatever purpose, is always a means of maintaining a defence system, but the nature of the goals imposed may extend to any degree of grotesque fantasy, which exploitees are to act out for exploiters. What we have called infection (p. 159) is exercised in fact by exploitation. The two concepts are almost co-extensive, though we may conveniently distinguish as the case of *emotional exploitation* that in which the behaviour of the exploitee confers on the exploiter no real advantage whatever. The process of infection has already been outlined (p. 125 ff.). We may notice especially the use of an exploitee

for resolution of a fantasy conflict on the exploiter's part (p. 126). In general, an exploitee is manipulated in such a way as to draw him into the fantasy world of the exploiter, causing him to act in perfect accord with the latter's projections. It is the slightest deviation from this puppet role which is liable to arouse envy (p. 159).

We can now see, as a special case, the *ideological* murder, massacre or war—typified by the assassination of Gandhi, the massacre on St Bartholomew's Eve and the Crusades. In problems of international scale, economic and ideological or emotional exploitation are intimately intertwined. The ideological aspect of the whole system is the most dangerous of all, and a potent threat today to the peaceful co-existence of nations on which human survival depends. For those pressure groups actuated by motives of the first three categories may be quite indifferent to the real outcome of a conflict disastrous to everybody. It is all the more necessary to ensure that no such group, in any country, is appeased by their fellow-countrymen.

The Process of Disinfection

Any deviation from the role of puppet will arouse envy in the would-be emotional exploiter (p. 159), but this envy will only issue in violence or overt attack in the presence of ambiguity, and is disarmed by unambiguous independence. Besides this, there is in practice a more positive factor. Few people are entirely and irrevocably committed to the paths of rationalization and exploitation. Most humans are a blend, retaining a measurable amount of true self-esteem, and true exploratory drive. It is a saving grace of exploration that while the least trace remains there is still a possibility of reversing the process of rationalization, and progressively restoring true self-esteem. If there was a simple division of mankind into rationalizing competitive-exploiters and intelligent cooperators, a book such as this would be pointless, for it would be wasted on the former and superfluous for the latter, who would long since have explored far beyond it. It is just because most of us retain some good will (as we may call it), while hampered by a measure of rationalization, that anyone who thinks he sees a little light on some things can usefully lay his conclusions before others, who may help in their turn to deepen and widen the illumination.

Thus while independence and intelligence in action may arouse envy,

it may also evoke exploration in the person whose defence it breaches. The balance will depend on many factors, including the extent to which the person displaying independence can evoke and retain the rational trust of others—their belief in *his* good will. If we expose the defences of others in a spirit of malice or contempt, we reap the reward of the enterprise in storms of envy. If we expose them in a constructive way, and this is apparent, we may arouse envy in some, but in others we arouse exploration, from which we in turn may benefit. The vicious spirals of infection may thus be broken, and a trend towards co-operation and mutual exploration set going in their stead. One special device to this end is the process we call psychotherapy, a deliberate and systematic attempt by one individual to promote the exploratory drive of another. But the same process happens in a more mutual way whenever two people examine their relationship in a friendly and completely communicative manner. Here lies the hope of mankind.

Meanwhile, those whose defences are, at least by present methods, impregnable, usually have room in their fantasy world for two roles, one dominant and the other submissive. If his potential exploitee deviates from the submissive role and also displays total indifference to envy, such an exploiter will save his defence by an abrupt switch, in which he himself assumes the submissive role; and as long as he remains in it, he can do no harm. His influence 'like a devilish engine back recoils upon himself'. The mechanism underlying such a switchback we call sado-masochism (see Chapter 7). It is specially evident where bodily illness is concerned, for bodily illness is connected with a submissive role (p. 144). There are people whose exploitation takes the form of ceaselessly inducing illness in those around them; should their fellows remain calmly healthy and impervious to envy, such people invariably fall ill themselves.

In any intermediate case between the individual readily prepared to co-operate and the individual (e.g., Hitler) who is finally damned, both factors are important. In the treatment of those with delinquent symptoms, we have a clear guide to policy, on the basis of the penultimate section (p. 166 ff.). In young delinquents, the predominant note is usually that of self-security. They will not co-operate if they sense in the person dealing with them either some degree of hostility associated with imperfect dominance, or some degree of uncertainty impairing self-assurance. In the former case, they react with a mixture of fear and rage to the other person. In the latter case, their irrational feeling of being in danger (from other sources) is enhanced. The important thing is to reduce their fear.

Alternatively, if their motives have become more predominantly exploitive, they will be overawed only by a convincing expression of higher dominance status on the other person's part. A prerequisite for increasing anyone's exploratory activity is to ensure that he cannot retain a dominant role by any manoeuvres. For as long as he can remain dominant in status, he will be tempted to take the easy way of maintaining his defence. These principles were clearly shown in the case of the patient who complained of draughts (p. 121). In most people, overtly delinquent or not, the proportions of these two elements vary; but it is a fortunate circumstance that a firm, calm, friendly approach meets both conditions.

The process of disinfection is reminiscent of a theme of many fairy stories, in which one human is under a spell, which forces him to try to seduce others into the same enchantment; anyone who resists may break the spell and save both. It is no service to anyone to submit or cater to his irrational exploitive behaviour, for this will only tempt him deeper into his own toils. It is never desirable to hurt anyone's real self-esteem. But to be tender or sparing of false self-esteem is only to do harm. Much in human relationships turns on the capacity to distinguish the two. The exploiter (like Foma Fomitch—p. 161) will always declare that you are being cruel if you refuse to submit to acting out his fantasies; but to accept this view (even in such guarded terms as are expressed in 'cruel only to be kind') is profoundly mistaken. Once such a confusion is accepted, the repressed is sure to return, and the return will take the form, when submission is finally abandoned, of truth administered as a vehicle of genuinely hurtful resentment—one certain means of ensuring that it is no longer truth, and will no longer benefit the recipient.

Love and Hate

In terms of the evolutionary machine, we can now state the main difference between the two forms of social relationship. The competer-exploiter manipulates his social environment to make it ever more constant and restrictive, so that his *own* behaviour becomes ever more fixed and automatic. (This way of thinking issues in the view, expressed in many stories and in the concept of Kismet, that the future is as fixed and unalterable by our actions as the past.) The co-operator influences his social environment to make it ever more varied and rich in alternative possibilities, so that his own behaviour can be ever more free and creative. This

is again the contrast between specialization and progress. In interpersonal terms, the co-operator constantly seeks to promote the exploratory activity, and hence the behavioural variety of others; the competer-exploiter seeks to reduce the exploratory drive of others to the barest minimum consistent with their execution of his fantasies. If we can call the former activity *love* (p. 147), we can call the latter *hate* or *hostility*. If it is no longer possible to reduce the exploitee's exploration, and hence keep him exploited, by other means, hostility will issue in murder, unless unambiguously restrained in the ways we have discussed or blocked by counter-fantasies in the hostile person. It is to murder that hostility ultimately tends, for a world of the dead is the most fixed and invariable possible; thus the logical end-point of this mode of life is the career of Hitler.

Rationalization, Deception and Sentimentality

So far we have considered two ways of employing the human means of interplay, especially that of speech: first, true communication, the medium of co-operation, and second, the expression of self-assurance. The latter already implies two forms of interplay, according to the attitude of the recipient of the message. For some it means a particular true communication; for others it releases instinctive reactions of fear and submission. But it imparts no false information. We come now to the final mode of human intercourse: the mechanism of *deception*. This means producing an instinctive reaction in another human individual without his awareness of the fact, by *simultaneously supplying him with a rationalization for reacting*. Deception is the social counterpart of rationalization in the individual, and once again a 'corruption of the best'—this time a corruption of communication. Deception and rationalization are indeed very closely linked, and the same particular falsehood may be used simultaneously for deceiving oneself and others.* This is brought out in a famous story of the psychoanalyst Stekel. One of his patients, thinking to outwit him, found an account of a dream in one of Stekel's own books. At his next session, he related this dream as his own. After he had produced a few ideas and experiences which he associated with the dream content, Stekel gave him an interpretation of the dream. The patient triumphantly announced that his analyst had been caught, and explained what he had

*When they are not the same, it is proper to speak of hypocrisy.

done. Stekel was not at a loss—indeed his interpretations had been perfectly accurate. He replied with what has by now become almost a catch-phrase—'Why did you choose *that* dream?' In more systematic experiments, it has been shown that, when unsophisticated subjects are asked to *simulate* madness, there is a definite relation between the verbal symptoms they produce and those found in the various forms of actual madness (Anderson, 1956; Trethowan, 1956; Kenna, 1956).

The subject of lying demands some nice distinctions. The truth or falsehood of a statement for the recipient depends not only on the speaker but on the interpretation put on his words. If we tell a literal truth to someone very far gone in rationalization, he is liable to interpret it not as a piece of true information to be integrated with his experience but as material for rationalization and a stimulus for some instinctive mechanism. In such cases, by concealing the literal truth, we may prevent a piece of compulsive behaviour on his part. Great care is needed in applying this principle, for the 'white lie' notion can readily be used as a rationalization for deception. But, as in the problem of hurting people (p. 170), we must distinguish deliberate deceit from inevitable misinterpretation. To communicate with those far gone in fantasy is a difficult matter. The statement must have some relation to their fantasies, or it will mean nothing to them, or mean something quite different from its literal significance. At the same time, it must be so phrased as to preclude its simple adoption as a further fantasy. A model illustration of this difficult art is provided by Fromm-Reichmann (*apud* Bateson *et al.*, 1956). She was treating a young schizophrenic woman with an elaborate religion of her own, equipped with a variety of gods. When starting treatment, she said: 'God R says I shouldn't talk with you'. Dr Fromm-Reichmann replied: 'Look, let's get something into the record. To me God R doesn't exist, and that whole world of yours doesn't exist. To you it does, and far be it from me to think that I can take that away from you, I have no idea what it means. So I'm willing to talk with you in terms of that world, if only you know I do it so that we have an understanding that it doesn't exist for me. Now go to God R and tell him that we have to talk and he should give you permission. Also you must tell him that I am a doctor and that you have lived with him in his kingdom now from seven to sixteen—that's nine years—and he hasn't helped you. So now he must permit me to try and see whether you and I can do that job. Tell him that I am a doctor and this is what I want to try.' In this ingenious statement, nothing false is communicated to the patient, while

to almost anyone else the whole passage would be either misleading or sheer gibberish. But this is an extreme case, and in ordinary human relationships there is a much simpler course open to prevent mutual misinterpretation—that of free communication in which each party can repeatedly explain exactly what he means, and what the words of the other mean to him.

Having made this clear, we can proceed with deception proper, always the medium of hostility. The possible permutations of deception are many (compare rationalization, p. 108). Let us begin with the most general form—*sentimentality*. This is hostile behaviour accompanied by the rationalization, transmitted to the recipient, that the behaviour is really co-operative and in the latter's interest. The roving human sense of humour, alert to catch rationalization in process (p. 35), has pinned down the procedure in the famous phrase: 'This hurts me more than it does you'. Sentimental deception can itself take a variety of forms, for instance those listed below (where the sentence is supposed in each case to be spoken by the deceiver to the deceived):

1   'You do this because you are in love with me'—intended to rationalize the behaviour of the deceived in carrying out the instructions of the deceiver. Here the deceived is provided with a falsehood about his own feelings. (One gender is used for convenience.)

2   'You do this because I am so nice to you'—intended for the same purpose as in 1. Here the deceived is provided with a falsehood about the deceiver's feelings and behaviour.

3   'I do this because your behaviour was bad for you'—intended to rationalize the acquiescence of the deceived in some behaviour of the deceiver. Falsehood as in 1.

4   'I do this because I am in love with you'—intended for the same purpose as in 3. Falsehood as in 2.

To this we must add a variety of falsehoods about third or fourth persons, intended to rationalize actions or submissions towards them by the deceived, which are in accordance with the goals of the deceiver— e.g., 'You must have nothing to do with X., because he is hostile'. The reader can work out a considerable number of further combinations.

In general, then, deception takes the form of producing an instinctive reaction in the deceived, which the latter would correct if he could explore it; this exploration is blocked by a ready-made rationalization.

Fixation

Little indication has so far been given of the means by which the deceived is caused to accept the rationalizations pressed upon him. This is a central problem, which has certainly not been solved. It is really the problem of hypnosis and suggestion, and when we fully understand these processes we may well be in full control of our own behaviour. But there are some descriptive comments we can make, which provide no final answer but may serve to guide research and throw some immediate light on the process. Some of these contributory ideas may be mentioned in this section; they will be more fully discussed in later chapters.

The process whereby one person is made into the slave of another may be called *fixation*. It is a weird parody of what we have called trust (p. 148). The person who trusts another may increasingly scrutinize and review the basis of his belief in the trusted person's intelligence and good will. But the person fixated upon another does this essential scanning less and less, until he treats the other's lightest word as law. Fixation implies the reduction of the self-esteem of the fixated, and it proceeds in particular by the creation or exploitation of a powerful instinctive conflict, by which the individual is held fixed, with no freedom for his intelligence to operate (this is the predicament of Hamlet; see Chapter 9). We may call this ambivalence. The fixator arouses in exactly equal measure irrational positive and negative impulses (p. 56). The former are made up of a complex linkage of appetitive drives cemented by that of sex, the latter of a balance of rage and fear. The whole complex amounts to a simultaneous activation of all the primary drives, which may be secondarily and unsuccessfully split into the mechanisms of *addiction* and *phobia*. Owing to the central role of sex in this complex, we may speak of it as *pseudosex*, and to the unravelling of this tangle we shall devote Chapter 6. While the exploitee continues to obey, addiction is uppermost, and phobia repressed and redirected; the return of the repressed is the murder for revenge (p. 164). The would-be fixator must play upon all these drives; his gambits correspond, with all their human overtones and intricacies, to the monkey mechanisms of threat and sexual appeasement (p. 143): in human form we may call them *terrorization* and *seduction*.

Sex and Pseudosex

Although the subject will be fully dealt with in Chapter 6, we must notice here the antithesis between real sex—uncoupled from the other drives—and pseudosex. The latter is the medium of exploitation. The former (pp. 209–210) has a specially close connexion with intelligence and communication, and the special importance of a real sexual relationship between two people lies in the fact that each is proportionately freed from pseudosexual involvement, and hence from vulnerability to exploitation. Thus an exploiter will be glad to engage his exploitee in pseudosexual activity, but will at all costs thwart the appearance of real sexual attraction to a third party. A mother, for instance, who seeks to fixate her son on herself, may encourage him to visit prostitutes, for whom overt sexual activity is not a matter of enjoyment on either side, but solely one of exploiting and being exploited. A son who falls in with such a plan really is being faithful to his mother 'after his own fashion'. Conversely, nothing arouses such inveterate envy and jealousy as a real and vital sexual relationship (compare p. 162).

This appears not only from great literature (above all *Romeo and Juliet*) but by historical example. Abelard and Héloise seem to have been really in love, and, mutually encouraged, they were setting about a process of exploration which might have overturned the whole fabric of medieval rationalization. This adventure is typified by Abelard's famous book, *Yes and No*, in which he exposed the absurdity of argument from authority, by showing that the early theologians contradicted each other on every possible subject. Everyone knows the sequel—the literal castration of Abelard, the separation and sequestration of the lovers, and the collapse of Abelard's great mind into philosophical imbecilities. Another example is afforded by Nelson and Emma Hamilton, who, whatever their irrationalities, seem to have been genuinely in love. In his dying words, the victor of Trafalgar, who had just completed the work of saving his country from invasion and ruin, confidently made a last and modest request—'Remember that I leave Lady Hamilton and my Daughter as a legacy to my Country—never forget Horatia' (cf. Oman, 1947). Everyone knows the sequel here too. Once the hero was conveniently dead, everybody sang his praises and nobody—except his indigent officers—spared a thought for his mistress or daughter; instead they voted a vast sum to his brother. So glaring a discrepancy can only be accounted for in terms of an outburst of jealousy, no longer restrained

by the need for Nelson's services; of course, it was moralized in terms of adultery and illegitimacy. But notice that, in both these examples, an element of ambiguity was not wanting. Marriage with Héloïse would have satisfied her relations but ruined Abelard's career in the Church, at that period the only career open to such a man; cohabitation with her as his mistress caused no trouble with the Church, but aroused the fury of her family. The position was ambiguous to the last degree. Nelson and Emma were not prevented by their technical adultery from showing their relationship unambiguously and with self-assurance—in the hero's life-time. With Nelson dead, Emma's position was untenable.

In brief, the process of seduction is that of purporting to arouse and satisfy sexual desire, while in fact stimulating and reinforcing pseudosex. Sexual attraction itself must be thwarted as effectively as exploration, if the fixator is to bring about fixation. This is done partly by terrorization, and the fates of Abelard and Lady Hamilton might serve as warning examples for this purpose, the former being castrated and the latter reduced to the last straits of poverty and social ostracism. And even when there is no real danger, those capable of sexual love are often driven to sabotage their own happiness through irrational fear of jealousy and envy.

'Now you see it, Now you don't'

We now consider another aspect of deception. The exploitee must not be permitted to exercise his powers of integration. The suggestions the exploiter seeks to convey to him must be dissociated at the very moment they are imparted. The exploitee must not be able to associate them together or with his other experience, for then, by the process of integration, he would see their real gist and discard them. His attention must be distracted, by a process exactly like the patter of a conjuror.

Assiduous observers or exponents of the competition-exploitation game, such as Machiavelli and Talleyrand, have always known this well. (Speech, said the latter, was given Man to conceal his thoughts.) Study of proconscious competitive-exploitation (p. 119) forms an extensive department of human sociology, which is beginning to acquire even a mathematical apparatus in the modern Game Theory (a body of high-powered theory, due to Von Neumann and Morgenstern—1947). The game lies in debarring the opponent from access to information on which a sound

prediction can be based, while furnishing him with the materials for false prediction. The co-operative person of good will must be alive to all this if he is to exercise leadership or even escape exploitation. Innumerable tricks of this trade are known to old practitioners. If you meet your enemy at the end of a journey, said a wily old Chinese diplomat, let the journey be his. A prime object of this sort of diplomacy is to catch the opponent when he is tired, when he has eaten or drunk too well, when he is ill, when he is distracted by some preoccupation—in short in any circumstances where he cannot fully attend to what is being said.

The ease with which two or more inputs can be associated depends strictly on the period of time, or span, over which continuous attention is possible (p. 111). In most of us full attention can only be held for a matter of seconds, and even moderate attention only for a matter of minutes. The span can be increased by deliberate self-training; it fluctuates with all sorts of factors. If one party to a diplomatic meeting can only maintain continuous attention for five minutes at a time, while the other can attend for ten, the latter can insert into the conversation two remarks between which there is a definite connexion, so spaced that they will form that connexion in the recipient's mind without his awareness (compare the Benton experiment, p. 114): he has only to space them five minutes apart.

On such considerations the method of free association in psychotherapy is based (though this was not perhaps fully realized by Freud himself, who discovered so much by this technique). The patient talks freely, communicating a variety of ideas, fantasies, recollections and feelings which are dissociated in his own brain. The analyst must attend as continuously as possible. He can then integrate the fragments by associating them together, and present the patient with his conclusions, so that the latter can make the association for himself. The span over which this is possible varies, and the fifty-minute period, arbitrarily fixed by Freud for the length of a single session, represents a convenient basis; the upper limit for even limited attention is reached at present after about a couple of hours. It is this that makes analysis an exacting occupation, as long as dissociation remains a human defect. The method also has its dangers. If too much reliance is placed on the attention of the analyst, the patient's own power of attention and association, deliberately relaxed as a means of circumventing his resistance, is liable to be weakened until he depends on the analyst for the integration of his own personality. The technique of free association should therefore be supplemented by every

device for increasing the attention span of the patient; one useful means
to this end is to cause the patient to write coherent accounts of his own
sessions, and if possible take notes during sessions for this purpose.
Psychoanalysis, properly applied, is really a process of training of the
mechanisms of attention, association and integration, together with a
liberation and stimulation of the patient's own exploratory drive. Thus he
becomes increasingly able to compare and relate not only his own
successive actions but those of others. (This is really the second step in
analysis: for the first, cf. p. 122.)

Dissociation is productive of rigid conditioning processes, as we saw
in detail throughout Chapter 2; it is precisely such processes that
the fixator seeks to induce. As Diebschlag pointed out, his pigeons were
conditioned with such fixity to a particular post because they were in-
fluenced incidentally by a variety of detail in the surrounding circum-
stances, detail which tended to be conditioned in separate blocks. He noted
that such incidental conditioning, as a reaction to factors unnoticed by
the experimenter, could account for 'self-training'—i.e., conditioning
processes in the animals unintended by the experimenter, which could
confuse his results if not taken into account. (This, he suggested, could be
overcome for experimental purposes by varying as much as possible
between trials the accompanying conditions of a particular test.) Hediger
(1955) has similarly called attention to incidental *social* reactions by the
animals to the experimenter. The scope of such incidental conditioning
is wide in mammals, on account of their capacity to react to elaborate
patterns of intention movements (p. 145). One mode of distraction is to
hold the opponent's attention with words, while conveying quite dif-
ferent impressions through facial or bodily posture and movements, or
by means of intonation. The conjuror's patter distracts attention from
his actions (innocently enough in his case); conversely, a particular
posture (e.g., of threat) may be used to distract attention from the content
of speech. The conditioning effect will be produced by whatever the
recipient does *not* attend to.

These principles appear in the all too little understood process of hyp-
nosis, whose devastating effects we have illustrated in the story of the
legacy (p. 105). The subject's attention is concentrated to a vanishingly
small point, and everything spoken by the hypnotist enters as incidental,
dissociated, conditioning instructions. The process may perhaps depend
on a low self-security on the subject's part. The hypnotist provides him
with a fantasied protection, and hence a false self-security. This aspect is

pointed by the formula frequently used in inducing the hypnotic state: 'You are going to sleep'. (The term itself is derived from the Greek word *hupnos*=sleep.) In many animals, sleep is associated with complete security (p. 54). The instruction therefore provides a hallucination of gratification for self-security. This false sense of safety is maintained at the price of implicit obedience to the controlling instructions of the supposed protector—precisely the situation of dependency (p. 160 and *Fig.* 24c2, p. 157). In general the relationship of dependency, or goal-level exploitation, must always be associated with some implicit hypnotic process. Hypnotic narrowing of the attention may also be self-induced, under conditions in which an individual can dissociate so completely as to view himself as two different people, one instructing the other.

Whether social or self-induced, hypnosis must not be confused with the precisely contrary technique which we may call *suggestion* proper. This is a means of broadening the imagination, which can be used with full attention and beneficial results. It may be through a better understanding of suggestion that all our difficulties will ultimately vanish; but not enough is known about it yet for it to be discussed at length in this book.

Hypnosis itself is a means for controlled direction of another person's attention, and, as such, a dangerously easy vehicle for distraction and dissociation. It can be used with benefit (and even as a means to suggestion proper in cases where this is otherwise difficult) but only if the hypnotic instructions include directions for the subject to acquire, at some convenient period, greater awareness, insight and integrated control over his unconscious material, *including* everything that happened in the hypnotic state, his state of mind at the time, and all the instructions he then received (cf. Wolberg, 1946). Hypnosis, like psychoanalysis, can be used for co-operative purposes with great effect; but the corruption of the best is here quite shatteringly the worst, and no engines are more powerful than perverted psychoanalysis and hypnosis for implanting rationalizations in others. The problem of selecting and training exponents of these methods is therefore becoming urgent; it is a problem confused by the unfounded notion that *medical* qualifications are desirable in such practitioners. In the case of psychoanalysis, Freud himself (see especially Freud, 1927) did everything to rebut such a notion. He pointed out that close co-operation with medical personnel is needed in psychoanalytic practice in order to control non-behavioural aspects of bodily illness; that for many reasons the two modes of examination and treatment

annot profitably be exercised by the same person in any one case; and that the types of training required by medical and psychoanalytic practitioners are totally different, so that, in any one case treated by a person with both qualifications, one of them is likely to be wasted.

Hypnotic procedures are lavishly used in advertisement, whose only rational function should be to provide information about available goods to prospective purchasers. If advertisement were purely informative, with legitimate use of wit and artistry for this purpose, competition between firms would be competition between products. But in fact, while many reputable firms adopt this principle, many advertisements are designed to induce hypnotic states in which specific instinctive releasing mechanisms can be planted, with their key stimuli (trade names, trade marks, 'brand images', etc.). The viewer is now to behave like the woman in the legacy story (p. 105). The sight of the trade name in a shop is to release a purchasing reaction, just as the sight of the doctor's watch was to release the act of making the will. Further, the viewer, like the woman in the story, may be induced to undertake appetitive behaviour for the key stimuli concerned. These results are attained by linking the general mood under which the purchase is to be made (e.g., a mood in which food of certain general kinds, or toilet articles, are sought) with the key stimuli which are to release the reaction, under cover of a distracting array of sights, sound and patter which are rationally irrelevant but irrationally potent (cf. again the Benton experiment, p. 114). Some advertisements go further, since, by employing irrational motivations in viewers, they induce them to purchase more of some general classes of article than they can rationally need or desire.

Hypnotic devices may also be used mutually in pairs or groups of people. Examples are to be found in the circumstances of some political or religious meetings (e.g., the practice of communal silent meditation). By such means, people may become linked together at an instinctive and not at an intelligent level. Such people are now prevented from co-operatively and constructively criticizing each other's actions and premises. Once instinctive mechanisms have become common to a whole group of people, the need for individual rationalization may disappear, and nothing is more instructive in examining a culture than the investigation of its unspoken and universally accepted premises. If this happens within a specialized group of scientists, their science can no longer progress, for certain major irrationalities, now common to all, must go unchallenged except from outside the group: this is why free communication between

different kinds of scientific specialist is so important (p. 421). Again, when a married couple become linked together in this automatic way, they can no longer influence each other constructively, for certain instinctive interactions are now shut off from comment by either party. The isolation of whole countries in this way is obviously especially dangerous. All these effects in pairs or groups of people can be produced by more or less elaborate versions of the methods used by the formal hypnotist in inducing the hypnotic state. Monotony and repetition are prominent in these devices.

We may now return to the processes of distraction and deception within speech itself. Here the chief mechanism is that of *condensation*. Statements, instructions, expressions of emotion, questions, anecdotes and so forth are presented in a jumbled stream, like that of free association. The meaning for the recipient of such condensed material, in which instinctive mechanisms are touched and stirred in a definite connected sequence, quite unapparent, may be quite different from the apparent significance of the superficially innocent remarks. In such transmission of fantasy, each sentence in itself is innocuous, but the *contextual* links, as in a sort of code, carry a definite meaning in terms of instinctive releasing mechanisms. If the recipient cannot attend to these contextual links, he will inevitably react to them in a dissociated way—the whole process is comparable to the Benton experiment (p. 114). The only remedy is a careful and attentive scrutiny of such apparently innocent inputs in terms of their associations: the recipient must act as an interpreter.

One of our patients, for instance, was liable to be ill and unable to work for several days after the arrival of an apparently innocuous letter from his mother. He had read each letter in a cursory way and seen nothing untoward in it. When the letters were carefully examined, it was seen that each sentence was indeed innocuous, but the emotional links between them made up a menacing sequence, amounting to a threat of death against the recipient. We cannot go into great detail here, but such an effect was produced by, for instance, three separately innocent sentences in sequence, one mentioning the death of a particular individual, the second mentioning some circumstance which might establish a connexion between this person and the recipient (a similarity of name, or of pursuits, or of temperament), the third expressing solicitude for the recipient's health and mentioning some particular possible illness. When this patient was accustomed to read his mother's letters with special attention, carefully noting such linkages, he became unaffected by them,

and was able to see in these condensed messages simply information about his *mother's* state of mind. He was now able to resist the process of behavioural infection (p. 126, etc.), by recognizing that the fantasies were somebody else's, instead of taking them over and acting them out as his own difficulty.

The analyst himself has to be on guard in this respect to an exceptional extent, for he is more exposed than anyone to such condensed messages, and as liable to succumb to the behavioural infection as were the pioneers in the treatment of literally infectious illness. It has been an occupational disease of psychoanalysts to end by accepting their patients' rationalizations as real, factual, causal explanations. This need not in the long run impede research, provided the conclusions of psychoanalysts are expressed in scientific terms. As far as possible, observations and theory should be recorded separately, to permit reinterpretations of the former. More important, the theoretical ideas should be formulated in such a way that any absurdity or incongruity is immediately apparent to *others*. This is the essence of scientific method, often expressed in the dictum that a scientific hypothesis is one that can be *disproved*—either by fresh observation, re-examination of the original facts, or the ready detection of false premises. In both these respects, Freud himself was a model, and may be read today with as much profit as ever for his objective records of observation. So lucidly did he state his hypotheses that their weaknesses (some of which we shall encounter in this book) stand out clearly, and permit us to examine his own false premises. As applied to human behaviour, the scientific method is a sort of prophylaxis against infection; and we have tried to illustrate it as much as possible in this book. That one's statements should sometimes be false is inevitable; this matters not at all, provided their falsity is readily apparent to others, and not obscured by ambiguous expression or above all by condensation. In the study of human behaviour, the ultimate safe-guard lies in increased exploration by every human individual; the elevation of a specialized guild of investigators would be fatal—'who shall watch the watchmen?' We must never be content with any explanation of human behaviour as more than a basis for further exploration, to be discarded or rebuilt as further exploration directs; and the more independent explorers the better. This programme is liable to be hindered by the development of esoteric jargons. There is nothing in the content of the present book which cannot in principle be understood—and hence checked—by anyone of good will, whatever his or her education or qualifications. We have sought to realize

such an aim by restricting our terms to those that seemed indispensable and defining them as intelligibly as we can. Otherwise any statements about human behaviour are liable to have a hypnotic action: this is sometimes called, by a total perversion of the word, 'blinding with science'.

We may give a second example of condensation, drawn from the analysis of a boy in his early teens. As the analysis progressed, he noticed he was becoming increasingly attentive to the less obvious intention movements of others. For instance, he began to recognize a particular tone of voice on the analyst's part, associated with 'summing-up', which he had hitherto reacted to quite unconsciously, as a signal that the session was coming to an end. Equipped with this greater attentiveness, the boy was able to notice a neat piece of condensation. One evening, his father was doodling on a piece of paper. The boy went over to look at his father's doodles. Meanwhile the mother sat silent in a corner with her son's school exercise books. The son pointed out the figure of a woman concealed among the doodles. 'Why yes, so it is,' said the father. The son remarked that the woman's breast was visible and resembled his mother's. At this point, the mother, hitherto silent and apparently oblivious of the conversation, looked up from her son's exercise book and said, addressing him by name, 'How do you spell "Caution"?' The son made no answer, but proceeded to add, to his father, that the belly of the woman in the doodles was also like his mother's. His mother at once repeated, with emphasis, 'How do you spell "Caution"?' Had the son been less attentive, he would have been instinctively affected by a remark which in itself was innocuous, but which, *in its context*, meant that he was not, with impunity, to explore the relationship between his father and herself (expressed in the doodles). As it was, the son understood the incident, and was merely amused. It may be added that he had originally come for analysis on account of a serious difficulty in spelling which was retarding his school career, and which the analysis greatly eased. One of his father's favourite remarks was: 'Do I have to spell it for you?'—meaning, clearly: 'Do I have to use special emphasis and detail to show you what I am trying to convey?'

Condensation is, of course, abundantly illustrated in political speeches. One of Stalin's, at a crucial meeting, consisted largely of repetition of the phrase 'cutting off of heads'—each time in a sentence of innocent and even laudable content: he won his point, and this particular meeting made him master of Russia. An illustration familiar to most people,

which the reader might find it entertaining to analyse, is Mark Antony's funeral oration in *Julius Caesar*. But the subtlety of the procedure may be much greater than this.

The tricks of Stalin were no doubt proconscious (p. 119), but we must reiterate that most people do this sort of thing unconsciously. When this is so, the infecting person may be perfectly well-intentioned and only too glad to be disinfected himself; for the condensation really expresses a fantasy of the speaker or writer, which is liable to be transferred to the recipient if the latter does not appreciate this, for he will then act on the fantasy as if it were his own. The mother of the first example would have been astounded by the interpretation of her letters; in her case the rationalizations were powerful, and she would probably merely have repudiated it. The mother of the second example was perfectly prepared to investigate her behaviour towards her child, and disentangle her own fantasies, as she showed when she later came for analysis herself. It is easy to see in the exploiter, deceiver and fixator a villain of the deepest dye; but he or she is often just as much a victim of the process as the exploitee, and may wish to behave quite otherwise. Whenever it has been clearly communicated to one of our patients that they were acting in this way, they have been glad of the insight and able to take advantage of it for their own and others' benefit.

Constructive and Destructive Criticism

We must now draw an important distinction between what we may call *constructive* and *destructive criticism*. The sort of interpretation just mentioned comes under the head of constructive criticism, an activity that makes up much of the process of psychoanalysis. Constructive criticism means offering to a person descriptions and interpretations of his behaviour which are provided as a particular case of genuine communication, and thus communicated at the level of intelligence. The recipient can consider them, compare them with what he has himself observed, and, if he finds them appropriate, freely make corresponding corrections. In particular, the constructive critic draws attention to any stereotyped instinctive patterns on the recipient's part. The effect of such criticism is to make the recipient's behaviour more free and variable, just like the effect of any other genuine communication. If the critic has any personal emotional reactions to the behaviour criticized, these should

be reported *separately as such*. The recipient can then isolate for consideration the irrationality of his own behaviour; the sort of reactions this arouses in others may be an illuminating part of the description. No harm can be done by such a procedure, which forms an indispensable part of intelligent communication.

Destructive criticism is a special case of deception. It is intended to act on instinctive and rationalizing mechanisms. In particular, it is intended to lower the recipient's real self-esteem. (Real self-esteem can never be injured by constructive criticism. For the observation of one's own mistakes, spontaneously or with the assistance of others, is a realistic step towards eliminating them. The mere making of a constructive criticism indicates a belief on the critic's part that the recipient can profit by it.) Destructive criticism usually conveys the implication, not that the recipient has made a mistake which he can correct once he has observed it, but that the recipient has some irremediable and incorrigible weakness or incapacity, and can *never* avoid making the mistake. He must therefore, it is implied, depend on the critic for instructions in future. Destructive moral criticism is a specially important kind. It is a manner of speaking larded with 'oughts'. (Some of our patients who are parents find it a useful technique to observe their own behaviour very carefully every time they use the word 'ought' in addressing their children. It is a useful maxim for anybody.) This is the social expression of, and mode of transmitting, moralism (p. 108). Such a critic offers apparent descriptions of and comments on the recipient's behaviour, which are really descriptions of and comments on the critic's reaction to it. 'That is very wrong of you', for instance, may mean, 'That makes me very angry'; the anger may be much more irrational than the behaviour, but it never comes into the discussion. The recipient is provided with a moralization for complying with the demands of the critic, which may be, and usually are, totally irrational. When two destructive moral critics collide, the result is a sterile debate about 'which is to blame' for something (p. 109)—really a straight combat on the concealed issue of which is to be the exploiter.

The essence of any form of destructive criticism lies in the hostile intention of the critic and the damaging effect on the recipient's real self-esteem. The same comment may be made in either way, constructive or destructive, for a destructive criticism may happen to contain a factually true observation. Accurate criticism given in a hostile way defeats any constructive object, and is reacted to as destructive. It is a subtle way of ensuring both that the recipient's self-esteem is lowered

and that he does not in fact change his behaviour. It is therefore important, for constructive purposes, that, if the critic feels resentful, he should say so, as a separate piece of information (e.g., 'You do this, which seems compulsive; it also makes me very angry'). Both the behaviour criticized and the critic's resentment can then be discussed rationally by both parties.

For constructive purposes, it is important that the critic should be trusted (p. 148). One of the difficulties of psychotherapy (only a special case of any would-be constructive relationship) is a confusion on the recipient's part between the two forms of criticism. A true constructive criticism will lower the recipient's *false* self-esteem, by exposing a rationalization, and this is liable at first to be misinterpreted as destructive. The difference between the two must therefore be very clearly grasped. Constructive criticism will lead to increased independence on the recipient's part, while the destructive process will tend to fixate him on the critic—it is a typical instance of condensation. Anyone who has been subjected to much destructive criticism will tend to resent *any* comments on his behaviour, until he has fully seen the difference. Destructive criticism can be made still more deadly if it is simultaneously rationalized as constructive. But the two can always be distinguished by noting whether the critic is prepared to discuss his own feelings and reactions separately.

The Three Corruptions

We can now begin to envisage an answer to the question—'What is a Man?' The human species is potentially intelligent, co-operative and communicative, and when it has realized these potentialities to the full it will be *Homo sapiens* indeed, and capable, collectively and individually, of unimaginably expanding progress. But full realization is restrained by the three perversions or corruptions of the human functions—rationalization, exploitation and deception. We can embody our findings so far in a simple table. Far be it from us to suppose that this scheme is exhaustive. But it has served as a powerful stimulus to exploration, and it provides enough strands to form a web of some complexity, if hardly approaching that of human life:

TABLE II

The Strands of Human Evolution

(From Russell and Russell, 1959)

	Animal Mechanisms	Human Mechanisms	
	Automatic	*Progressive*	*Specializing*
Individual Function	Instinctive	Intelligent	Rationalizing
Social Interplay	Competitive	Co-operative	Exploitive
Mode of Interplay	Interactive	Communicative	Deceptive

The Spiral

The three corruptions are obviously wholly undesirable, and their persistence is virtually the only obstacle to human happiness and human progress. Why should we not simply throw them off? How are they maintained? The answers must be related, for if we sufficiently understand the way these corruptions are maintained, there is nothing in principle to prevent us from setting ourselves free.

The answer which we shall explore in this book—in the hope that it may be much more fully explored by others—is a continuance of the same theme. For the mechanism which perpetuates these corruptions is itself a corruption of that supreme gift which above all others has brought in the dawn of human progress—the capacity to co-operate and communicate *in time* through the generations. Let us sketch the main argument, which in the following chapters we shall try to enrich and document from actual observations.

A man is not born with an intelligence fully formed, as the goddess of wisdom sprang fully equipped from the head of her divine father. In each of us this delicate mechanism takes many years to begin to function with full efficiency. To cope with this period of apprenticeship, we have developed the most prolonged and elaborate form of *parental care* known in the animal world. Beginning with what he learns from his parents, the child can gradually enter on the full human heritage—the capacity to benefit from the accumulated experience of all previous generations, communicated in permanent records. From its very nature, this is a period of extreme susceptibility, and it is through the rearing of its children that each generation most profoundly influences the behaviour

of the next. For just as co-operation can extend through the generations, so also can competitive-exploitation. And just as one generation can communicate true information to the next, so it can also deceive its offspring, transmitting to them the infection of its own rationalizations and instinctive functions, as some literal infections can pass from parent to child. (It is indeed significant that such explorers of the behavioural process as Ibsen have been so preoccupied with venereal diseases.) It is in the time of childhood and adolescence that transmission is particularly easy and deadly. Thus the envious dead hand of the past lies heavy on the progress of the present, and human progress is a slow and painful climb. Since this transmission of infection is through social interplay, it is on social progress that the hand of the past lies heaviest.

If all this is true, as much evidence suggests, it offers us at the same time the key of freedom. Much of this vicious spiral runs through the coils of unconscious influence, and most parents are ready to explore their own unconsciously determined behaviour in the hope of furthering their children's happiness and progress, and by the same token their own. At the critical turn in the coil—the phase of childhood and adolescence—so powerful is the effect of a slight change in the balance of love and hate, that the slightest improvement in parental treatment of children will be rapidly amplified in a couple of generations (it is what the engineers call a regenerative cycle). In the succeeding chapters, we shall have to dissect the competitive and exploitive attitudes of parents to children, and their effects. This must not be thought of in terms of blame. If moralization enters the analysis, it entails an extrapolation of blame back through the generations to some preposterous scapegoat in a mythical Garden of Eden. And since we must perforce concentrate in the analysis upon the corruptions we all wish to be rid of, let us first spotlight the constructive end of such an analysis. The slightest diminution in competitive-exploit-iveness, the slightest increase in communication, between the parents of any one generation and their children, can lead to a liberation, gradual at first but increasingly explosive, of the human species. How to accelerate the process should be the primary aim of all human research. But one thing is certain. The more exploratory and communicative is every single parent, the more certainly the liberating process will begin.*

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* See Appendix 10: The Fixation of Faust.

Behavioural Inheritance

'Child, be more fortunate than your father, but in
other respects identical.'

Ajax (Sophocles's *Ajax*)

'The child is father to the man.'
How can he be? The words are wild.
Suck any sense from that who can:
'The child is father to the man.'
No; what the poet did write ran,
'The man is father to the child.'
'The child is father to the man'!
How can he be? The words are wild.'

Gerard Manley Hopkins

The Story of Jedda

A year or two ago, an unusual and interesting film was shown in London:
it was called *Jedda*. It was made on location in Australia, and said to be
based on an authentic true story set in that continent. Australian friends
tell us they have heard of other episodes having something in common
with this one.

The film concerns an aborigine girl, or 'lubra', who is born in the
household of a lonely estate just as the white rancher's wife loses her own
baby, which dies at birth. The white couple rear the aborigine child as
their own, and in course of time propose to marry her to their half-

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breed foreman, a capable and good-natured young fellow with whom she has been brought up. The white foster-mother is fanatically determined that the girl, Jedda, shall not think of herself as an aborigine. Jedda is made to conform in every way to the white culture and discouraged from association with the aborigine servants and workers on the estate. She is especially forbidden, with every circumstance of solemn warning, to find out what these people do on their periodical departures into the wilderness for the purpose of ritual sexual festivities. She is also, in general, exposed to a Victorian obscurantism where sexual matters are concerned.

When Jedda is already nubile, a new aborigine worker appears on the estate. He is a sadist and, in fact, mad; it later transpires that he is already a hunted murderer, considered delinquent as much by his own people as by the white authorities. This man exerts a strange fascination over Jedda. Eventually, he diverts attention from himself by starting a fire, and while this is in process he abducts the girl, who accompanies him half by overt force and half by the force of her addiction. He drags her into the wilderness and gradually forces her to conform to his own mode of life. Hunted by the whites, he arrives with his slave at the village of an aborigine tribe, who are deeply scandalized and uncertain what to do with him. The film reaches its climax on the top of a cliff above the village, where the foreman, eager to save Jedda, finds the pair together on the edge. The madman throws himself and Jedda over.

The film is accompanied by a narrative commentary spoken by the foreman. Presumably the makers of the film intended this commentary as ironical and part of the drama itself. For the interpretation put on the story in this commentary is, of all things, a *genetical* one. It suggests that the racial urges which Jedda inherits from her aboriginal forebears are so powerful that the most ruthless attempts to rear her as a white girl must fail; and that it is these urges which finally break through when she goes native with her abductor. This rationalization is totally confuted by the details of the film itself, which are presented with objective completeness and proportion, and clearly show the following aspects of the story. With such a parental upbringing, any girl might fall for a mad sadist of any race. Throughout her upbringing, Jedda is surrounded by people physically similar to herself, from whom she is to consider herself mysteriously separate. The madman is not a typical aborigine, but an outcast from both cultures. All the girl's problems and behaviour spring from a purely behavioural clash; the intense discipline to which she is

subjected by her foster-mother, in order to make her carry out a particular fantasy, whose starting-point is the dead white baby; the underlying enmity with which this discipline is enforced (it is made clear at the outset that the foster-mother hates Jedda for not being her own child); the fact that this fantasy necessitates, for its realization, an impossible bodily change in herself; her constant exposure to people of another culture who are prone, from her physical appearance, to treat her as one of themselves; and the final appearance of a person who seems likely to resolve her conflict by forcing her much more savagely into the role which is so strenuously prohibited. It is part of her tragedy that she might have been happy with the half-breed foreman, but was trapped into the delusion that what is forbidden must be the only possible kind of freedom. All this has nothing to do with race or genetical inheritance, as was underlined by the showing in London about the same time of another interesting film, *I'll Cry Tomorrow*, based closely on fact (the autobiography of Lilian Roth). In a similar sort of situation, this woman temporarily succumbed to a similar sort of sadist, also as a result of the intolerable strain of being forced to realize a parental fantasy. In this instance there was no question of race to confuse the issue. Cited at the start of the film was Lilian Roth's own pithy statement: 'My life was charted before I was born'—a conclusion which, as this film also made quite clear, has nothing to do with genetics.

The rationalizing commentary to *Jedda* had an interesting effect upon one of our patients. His first reaction to the film was that it was wildly improbable nonsense. Only later did it emerge that this reaction was a condensed one. While seeing the film, he had, in fact, accepted the rationalization about race as an inseparable part of the story itself. Later he was able to realize that it was the rationalization that he had found improbable; this had led him to dismiss the whole story as absurd, despite its objective direction and its basis in fact. This observation sums up the two possible defence systems against recognition of an abundantly evident feature of human life. One defence is to accept the large extent to which the lives of most people follow automatic, charted courses, as if under the influence of some ineluctable fate or destiny, but to ascribe this to genetical control of the finest details of behaviour. The other defence is to dismiss the whole of this automatism as wildly improbable and suppose that we already have a perfectly free hand in the direction of our affairs, without the need for shaking off any such automatic control. Either defence averts recognition of the fact that our lives are indeed startlingly

finely determined, as a result of distressing experiences in our infancy, childhood and adolescence.*

Behavioural Inheritance

Our behaviour must, of course, be influenced by the instructions conveyed genetically, that is, coded in our chromosomes (p. 48). But we cannot expect from these instructions sufficient detail to cover the astonishing precision of human automatism which we shall shortly illustrate. Apart from cases of gross structural or biochemical defect, genetically determined differences between individuals are probably chiefly expressed in the relative levels of the four intelligence factors (one of which—p. 36 —gives scope for some genetically determined differences in specific talent). It was to such differences that the attention of the first great human geneticist, Francis Galton, was directed. These differences must play an important part in determining the reactions of children to similar behaviour on their parents' part.

But it is a necessary part of scientific method, as applied to human affairs, never to invoke genetically determined differences (except for gross structural defect) when we can show differences due to variations in parental behaviour, and hence in the family environment in which a growing individual's behaviour is influenced. The asymmetry of method is the more important as in our own culture the two factors are liable to operate in parallel—in other words, children are usually brought up by their actual parents. Patterns of behaviour can thus be transmitted down a pedigree as the parents of each generation influence their child in ways predetermined by their own experience at the hands of their own parents. This process of transmission we call *behavioural inheritance*. It can mimic all the known features of genetical inheritance. For instance, a particular pattern can lie dormant in one generation to reappear in the next, as in the phenomenon of genetic expression known as recessiveness, and under rather similar circumstances. Again, it is a characteristic feature of genetical inheritance that children of the same parents are in many ways different; this effect can be produced by behavioural inheritance

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* These two defences have engendered much confusion in behavioural science itself over the usage of the term 'instinct'—see again Appendix 5; there is good evidence that the resulting controversies are connected with irrational disagreements about matters outside the laboratory (cf. Benassy, 1956, p. 736).

if the children are cast by their parents for different roles. Only one type of observation will decisively separate the two factors—studies of genetically identical twins isolated literally at birth and brought up in totally different surroundings. Such opportunities are rare. No such problem arises, to any appreciable extent, in the genetics of the lower animals, where behavioural inheritance is absent or slight. The choice between any two hypotheses in science is based on the determination which of them will ask most questions and suggest most further investigations. We must therefore always begin by postulating behavioural inheritance to account for similarities or differences in the behaviour of related human individuals. Whenever this is done, it does in fact lead to the discovery of new facts about the relations between parents and children.

Few people were more aware, if in a confused way, of this kind of fatality with which instinctive mechanisms persist relentlessly through the generations of a family, than the Greek tragedians, who embodied the notion in the concept of Ate, the family curse. In most of their treatments, the curse had to be *handed on* behaviourally. Thus the ultimate fate of the sons of Oedipus (to kill each other) was implicit in the whole story of the House of Thebes, and its logical end-point. But it could only be brought about when Oedipus himself explicitly uttered the curse in the presence of one of them—a picturesque way of implying that he had brought them up in such a way as to ensure their mutual hostility (p. 262).

Behavioural inheritance has wider potentialities and is not restricted to genetic pedigree. Much of what we shall later say of parents may apply equally well to guardians, related or not, and often a potent factor is the subsidiary influence of other members of the family—aunts and uncles, or especially grandparents acting directly. We need not suppose, with Freud, that all the effects are produced before adolescence, at an age when parents are the only influences (though even then, in some classes of some cultures there are attendant slaves, wet-nurses or nannies). The concept of behavioural inheritance can be used in its widest sense to define a *culture*—an assembly of individuals persisting through many generations, linked by strong behavioural relations, irrespective of their genetic affinities. What genetic inheritance is for the biological species, behavioural inheritance is for the discrete human culture. Race is of little importance in human affairs, except in creating physical differences which can serve as key stimuli for acquired instinctive mechanisms (e.g., differences in colour). But the Jedda pair of fallacies may arise here. Those

who rightly brush aside the Nazi nonsense of racial prejudice may fail to notice the persistent character of a culture, which may remain constant long after profound genetic changes have taken place in the actual population of individuals which it controls. The instinctive character of a culture, behaviourally transmitted, may also persist through a diversity of superficial political institutions. Those individuals who deviate from the cultural pattern may be unable to transform it, and may be thrown out, dragooned or destroyed. A highly uniform culture may be a far more stable and compact social unit than a race.*

In spite of all this, in our own European culture group (including its off-shoots on other continents) it is the parents who form the key point of influence for behavioural inheritance. It is therefore on parental behaviour, and the reaction to it of the growing child, that our interest will centre in this and the next chapter. We shall mainly consider what can go wrong in this relationship. It is therefore important, before we begin, to make one thing clear. The Nazis, with all their ill-informed talk of genetic race, did everything in their power to divert behavioural inheritance from the channel of the individual family. Like the Spartans, they removed children from parental influence as much and as early as possible, and even strove to make them hate and spy upon their parents. With all its present defects, the transmission of behaviour through the generations by individual families is the most progressive form of behavioural inheritance that man has developed, because it leaves room for divergence and diversity. A progressive culture is characterized by freedom of parents to bring up their children, by the provision of facilities for education, and by interfering only when the influence of the parents is grossly or predominantly destructive. These are perhaps the best criteria for the use of the over-worked term 'democracy'. The significance of

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* But of course this cultural analysis has very different *practical* implications from one in terms of race. No stigma of inherent inferiority attaches to the individual member of the most rigid savage culture, who is as educable as anyone else if his education begins before the tribe have imposed their instinct system upon him (cf. Chapter 10). And a whole society can be reclaimed for progress by suitable procedures, though these require much thought and research, to ensure that the culture maintains its balance at each stage of reclamation (Russell, in preparation). In a multi-cultural society, participation in self-government should naturally be related to *educational* level. Confused thinking here leads again to a pair of opposed 'Jedda fallacies': (*a*) that only people of one *race* are fit for full enfranchisement, and (*b*) that this should be extended to people who are still culturally specialized, *without educating them*. Either fallacy will hinder and sabotage the basic progressive procedure—education of individuals and peoples for civilized self-government.

all this will be clearer when we come to consider the nature and limitations of savage societies (Chapter 10. For a parallel principle in genetic inheritance, cf. Russell, 1959*b*). Meanwhile let it be understood that in the following sections we are to examine the deficiencies of the best mechanism of behavioural inheritance.

Human Automatism

We shall never achieve control over our own evolution, unless we recognize the overriding extent to which our history so far has been inescapably forced upon us. By the same token, the individual can only begin to act freely if he can face the degree to which his behaviour has been compulsive hitherto, alike in the most trivial and in the most momentous matters. It has been forced again and again upon our attention that each of our patients (not to speak of ourselves!) has behaved, at every crisis of his life, in a manner predictable in detail from a knowledge of the previous history of his parents and of his family as a whole. In marriage, for instance, the timing, circumstances and choice of partner may be determined with uncanny exactitude. Sometimes the automatism is simply a straight repetition of the lives of one or other parent. The details thus controlled may include the age at marriage, the duration of a marriage ended by a divorce, the relations between the families of the two partners (for instance, there may be in each a certain number of brothers and sisters), above all the Christian name of the partner. For in our culture, parents usually determine the Christian names of their offspring, and thus express all their own intentions for the latter; moreover, names provide a compact form of releasing stimulus. Freud himself was adept at spotting this sort of thing. On one occasion, at the composer's earnest request, he gave Gustav Mahler a brief but successful spell of psycho-analysis—four hours in all—in which he was able to relieve him of a serious obsessional symptom, which had prevented him from producing his most creative musical effects. In the course of their conversation, Freud suddenly asked why Mahler's wife's name was not Marie but Alma. (He had already inferred from hints in the composer's talk that Mahler's *mother's* name was Marie.) Mahler, who had sought help on account of difficulties with his wife, wonderingly admitted that his wife's name was Alma Marie, but that he called her Marie! (Jones, 1955). This is a neat instance of selection helped out by projection (p. 125).

Examples of this kind could be multiplied almost indefinitely, but their quotation tends to conflict with the demands of clinical anonymity, still important in the present state of human affairs. But anyone who carefully scrutinizes his own career and those of his parents, grandparents and other relatives will be astonished at the number of links he can find.

It is not difficult, and often fascinating, to see this sort of thing in history, where the destinies of individual families and those of whole cultures come together in the careers of great ruling dynasties. Often history repeats herself, but always with variations determined by the progressive movements of cultures as wholes. In terms of exploitation and dynastic struggle, we can see much in common between the Tudor Monarchy in England and the Julio-Claudian line of Imperial Rome. Each dynasty rode into power on the shoulders of a new and powerful class. Much of the subsequent history concerned the more or less systematic extermination of the former ruling classes, weakened by the Wars of the Roses and the civil wars of the Roman Republic. Within each family, we can trace repetitions and fatalities. But the destinies of the Julio-Claudians were involved with the inevitable collapse of a civilization, and ended with the fatal discovery, which hastened that collapse, that emperors could be made by provincial armies. The destinies of the Tudors were bound up with the turmoil of progressive changes in European culture which, far from destroying it, opened the way for the rise of science and technology. Under the last of the Tudors, her rare intelligence and the peculiar conditions of English life combined to establish a point of stability on which, for centuries, the progress of Europe was to hinge, and expressed themselves in a greater florescence of poetry than that which ushered in the principate of Augustus. And yet, even in the most gifted and successful of dynasties, we can trace a series of extraordinary automatisms, which took all their gifts to integrate with the changes around them. This series is all the easier to trace from their literalness in the matter of names.* The number of Christian names may have been limited in sixteenth-century England, but not limited enough to account for the course of events we shall now briefly catalogue.

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* Names, of course, make particularly convenient key stimuli for human releasing mechanisms; key words are often used as signals in hypnotic experiments. We may recall the charming use made in 'Ruddigore' of 'some word that teems with hidden meaning—like "Basingstoke" '.

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The Marital Career of Henry VIII

Henry VIII was the son of Henry VII and *Elizabeth* of York, daughter of Edward IV and Elizabeth Woodville, and sister of the famous little princes murdered in the Tower, Edward V and Richard, Duke of York; most of her relatives had been imprisoned or exterminated by her husband, Henry VII. The children of this union included, besides Henry VIII himself, an elder brother Arthur, an elder sister Margaret (having the same name as Henry VII's mother, Margaret Beaufort), and a younger sister, *Mary*. Henry was attracted to Mary, but hated Margaret. He also had a governess, *Anne* Luke, whom he treated well when he came to the throne. Prince Arthur married the Spanish princess *Catherine* of Aragon, but predeceased his father. Prince Henry was in due course betrothed to his brother's widow, and urged to marry her in a last interview by his dying father. He married her on June 11, 1509, less than two months after his father's death; 'on the same day the commission of claims was appointed for the King's and Queen's coronation' (Pollard, 1934). Marriage to a woman called *Catherine* was thus inseparably connected in Henry's mind with his possession of the throne, for the two events were not only directly connected in time, but linked by Catherine's status as the widow of the original heir; moreover the marriage was stamped by a father's dying command. (We have come across more than one case among our patients of individuals marrying under the pressure of dying parents or parents-in-law. This may have been Shakespeare's experience—p. 417.) There was also an obvious connexion with the deaths of his father and brother: his marital status was to be marked by a series of judicial murders. It is said that Henry VII's dying commands also included instructions to kill the last survivor of the rival dynasty, *Edmund* de la Pole; *Edmund* had been the name of Henry VII's own father (and of a son of his, who had died before Arthur). This command Henry VIII duly carried out. We must add finally that shortly after Elizabeth's death Henry VII had considered marrying Catherine himself.

Given these preliminaries, the rest of Henry VIII's marital life was indeed charted. He never actually married anyone called Elizabeth or Mary, but his mistresses included *Elizabeth* Blount and *Mary* Boleyn. By the former, he had a bastard son *Henry*, who died young. His first marriage, to Catherine of Aragon, was by far the longest, and he showed extreme reluctance to bring it to an end, despite many motives for doing so. It was nearly eighteen years before he started divorce proceedings

against her, and the divorce was to reinforce his fantasy by actually jeopardizing his throne. The stimulus came from his sister Margaret, who in March 1527 obtained a divorce on scandalously flimsy pretexts; she was at the time living adulterously with a Scottish noble called *Henry*. Two months later, Cardinal Wolsey opened the divorce proceedings against Catherine, on not dissimilar pretexts, though Henry, dissociating merrily, wrote his sister a letter of shocked criticism. There followed the English Reformation and the Act of Royal Supremacy— an anxious unconscious protest by which Henry must have sought in fantasy to render himself not only head of the Church but King without the possession of a wife named Catherine; those who resisted the Act were executed without mercy. Henry now married *Anne* Boleyn, sister of his former mistress Mary. He had not married an Elizabeth or a Mary, but he called his first daughter, by Catherine, *Mary*, and his second, by Anne, *Elizabeth*. The third marriage, after Anne's execution, broke the sequence of names, being to Jane Seymour. We may surmise that at this point the urgent need and public pressure for a legitimate male heir drove Henry outside the circumscribed limits of his fantasy system. The heir was ominously called *Edward*: the last King of that name had died in his teens while under the protectorate of an uncle. After Jane's death, marriage to *Anne* of Cleves was soon followed by her divorce and the execution of her sponsor, Thomas Cromwell, successor and namesake of Wolsey. Henry now married *Catherine* Howard, and seemed to be settling down with relief; after the detour to obtain a male heir, he was safely married again to a Catherine. But alas! his new wife was unfaithful, and when this was reported to him he was obliged to take action. This untoward interruption of his fantasies all but shattered his defence system, and for the first and only time in his life he came near to a complete breakdown: the condemnation and execution of Catherine Howard were accompanied by terrible and unique scenes of hesitation and distress on his part. Her unfaithfulness would seem an appalling threat, if in his fantasies she represented the throne. He had now divorced a Catherine and an Anne, and executed an Anne and a Catherine. He lost no time in marrying a last *Catherine* (Parr), with whom he could at last settle down, but not without a certain suspiciousness. She survived him as a result of her supreme tact. On one occasion rumour reached him that she disagreed with him on some theological point, but she explained that her remarks were 'only intended to "minister talk", and that it would be unbecoming in her to assert opinions contrary to those of her

lord. "Is it so, sweetheart?" said Henry; "then are we perfect friends" '
(Pollard, 1934).

It would take several books to fill in this sketch, and explore the
remarkable luck with which Henry contrived to integrate the acting out
of his fantasies with the movements of his culture; this was the Tudor
gift, and of course it was lucky only in the simple sense that if they had
not had it they would not have continued to rule. In brief, we can best
account for the oscillations of Henry's religious and political policy and
family alliances with noble factions in terms of a ceaseless swing between
the urge to act out his father's and his mother's fantasies. In the long run,
hers were to win (and she must have had unconscious or proconscious
fantasies of destroying her usurping husband and his dynasty). Once the
children were named, their destinies too were charted. The bastard
Henry and the royal Edward VI died young; Mary, enmeshed in her
mother's fantasies, died worn out; the last, longest and most glorious
reign was reserved for an *Elizabeth*.*

The Central Problem

The significance of a story like this will become clearer in later chapters
(especially Chapter 8). For the present, we must concentrate upon the
mode of transmission of fantasies. If the behaviour of parents in general
to their children were not co-operative, or loving, to a considerable
extent, even the present degree of human progress would never have been
reached. But if parental attitudes were *wholly* co-operative, every individual
would freely develop his intelligence, and successive infection with
instinctive mechanisms and their rationalizations would never occur.
The central problem is therefore that of accounting for competitive
and exploitive, or hostile, attitudes of parents to children, and the resulting
unconscious or proconscious deceptive behaviour, whereby the children
become fixated and drawn into the fantasy world of their parents. To
obtain a perspective, we must return once more to the simpler world of
the lower animals, and examine the relationships there between the pro-
cess of breeding and the simple competitive relation that governs the
social behaviour of animal breeding colonies.

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* For a brief sketch of some of the sequel, see Appendix 11: Elizabeth, Mary and Essex.

Competition and Mating in Animals: The F.A.M. System

Breeding in animals involves two separate sets of activities: that of *mating*, which results in the fertilization of eggs inside or outside the female body, and that of *parental* care, which contributes to the survival of eggs, and of young until they can look after themselves. Mating is a necessity in all animals with separate sexes. (Very few vertebrate species are thought to be truly hermaphrodite, that is, made up of individuals which can function simultaneously as fertile males and females—Brambell, 1930. Little is known about their behaviour.) As for parental care, there are three possible conditions. In *non-parental* species parental care is altogether absent (as in many frog and toad species) and the fertilized eggs are left to take care of themselves. In *uniparental* species eggs or young are reared by only one parent, the female in some species, the male in others. In *biparental* species the eggs or young are reared by the joint efforts of both parents, working together in instinctive co-operation (p. 146).

In non-parental and uniparental species, individuals of the two sexes need only remain together and interact instinctively long enough for mating to occur. In biparental species, the two members of a mating couple must remain together and interact for a much longer period; they are said to be *paired*. We need not concern ourselves with the many variations on these themes, such as diverse forms of polygamy.

During the breeding season, the drives of *flight* and *attack* are usually active in males and females, not only in relation to potential predators of other species which might attack the young, but also in relation to the competitive situation within the species (p. 134). These drives are prevented from causing slaughter or dispersal, by means of the mechanisms of territory, threat and dominance (p. 136). But owing to the workings of instinctive releasing mechanisms, and in particular of key stimuli, when drives are at a high level their executive behaviour can be released by inappropriate objects (p. 76). How, then, are the male and female of a given mating couple able to mate? How can they be prevented from attacking or fleeing from each other? In non-parental and uniparental species these inappropriate reactions must be avoided long enough to permit a fertile mating; in biparental species they must be prevented more persistently throughout the whole period of parental care. The problem has been solved by the development of *courtship ceremonies*. These have been analysed with great success in many species in the present

decade, through the work of Tinbergen and others. Morris (1956) has provided a useful terminology, which we shall follow.*

The individual faced with a potential mate is usually in a triple conflict, between the drives of Flight, Attack and Mating—abbreviated by Morris as *F.A.M.* The object of courtship is to reduce, in both partners, the drives of Flight and Attack, so that the Mating drive can dominate each animal's mood and issue in pure mating behaviour. The movements of courtship, like those of threat (p. 97), are compromise or displacement activities, though made up of three, instead of two drives. As courtship continues, the flight and attack drives are gradually worked off by their participation in these movements, so that the mating drive predominates more and more. But these movements have been ritualized as signals for the other partner (p. 97), which serve to reduce his or her attack and flight drives and release the mating drive. Thus in both animals attack and flight drives are reduced in favour of the mating drive, which finally permits the act of fertilization. In the male guppy, mood can be assessed by coloration (p. 75). In this way Baerends and his associates (1955) were able to produce an inferential but plausible plot of the change in level of the three drives in this animal under various conditions: their diagrams are shown in *Fig. 25*, which may be compared with the theoretical general diagram of *Fig.* 4 (p. 53). In short, by means of courtship, attack and flight drives are prevented from interfering with mating.

In different species, and in the two sexes, the proportions of the three drives vary. The three-spined stickleback is a uni-parental species, in which only the male rears the eggs. This species is protected by powerful spines which discourage predators (such as pike and perch), and is therefore fearless of enemies of other species. The male sets up a territory, in which he builds a nest to receive the eggs, and from which he drives other males. Eventually he lures a female into his territory, courts her and fertilizes the eggs which she lays in his nest. Most of the courtship takes place well within his territory, where his own flight drive is very low (p. 136). The female is an intruder, and hence very frightened, with little tendency to attack. The problem therefore resolves itself into that of reducing the male's attack drive and stimulating the female's mating drive. This is achieved by a courtship ceremony on the male's part, whose main feature is a ritual zigzagging dance, of which the zig is an attacking movement towards the female and the zag a mating movement towards

* For historical details and references, see Appendix 12: The Study of Vertebrate Courtship.
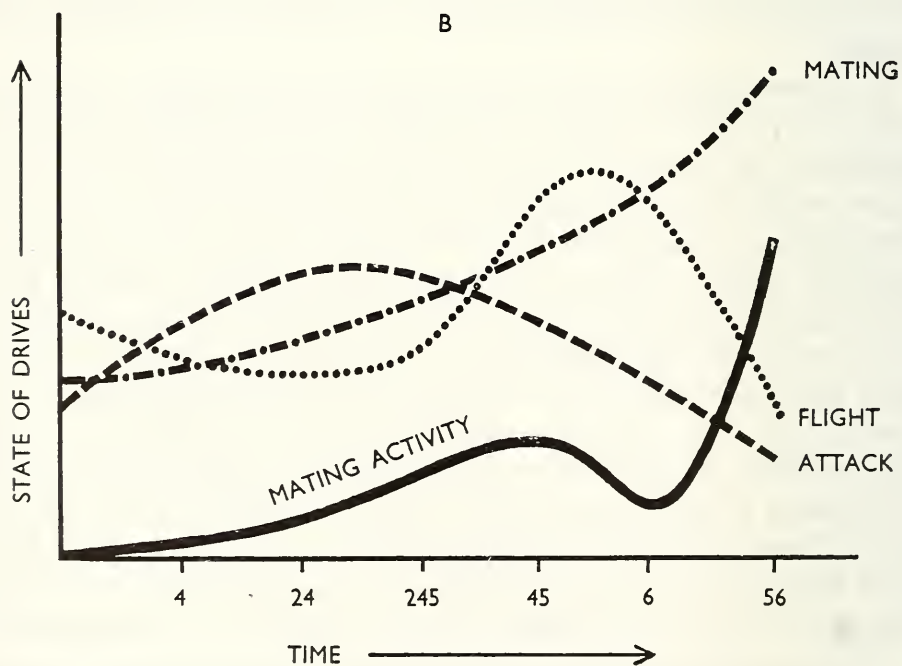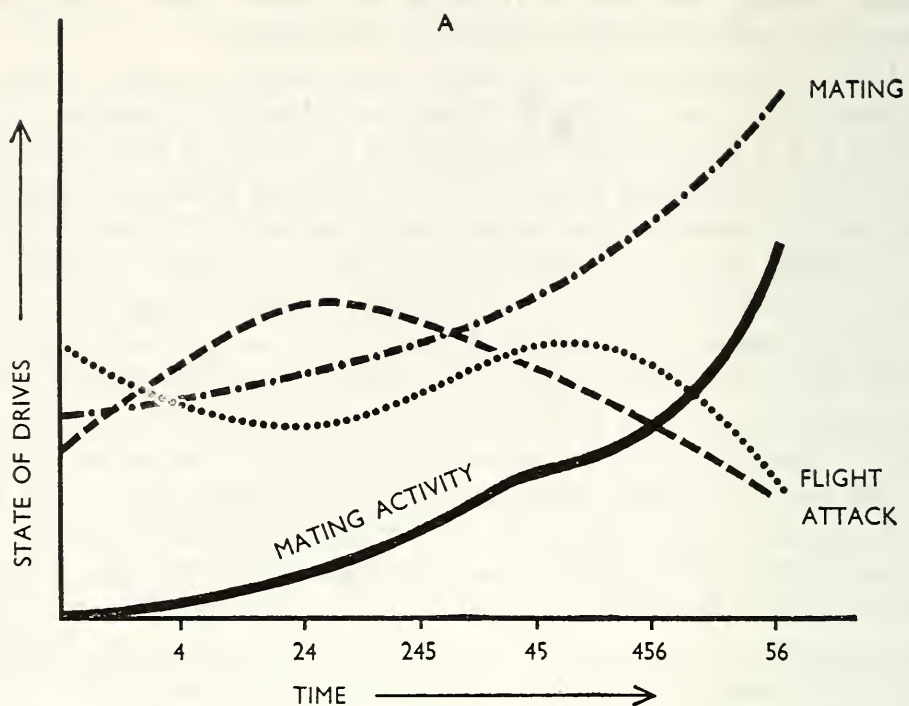
A

MATING

STATE OF DRIVES

MATING ACTIVITY

FLIGHT
ATTACK

4   24   245   45   456   56

TIME

B

MATING

STATE OF DRIVES

MATING ACTIVITY

FLIGHT
ATTACK

4   24   245   45   6   56

TIME

These graphs show (in two different types of courtship sequence, A and B) the manner in which the drives of flight, attack and mating may be supposed to fluctuate during courtship in the male guppy. The thick line indicates the resulting change in tendency to perform mating acts. The fluctuations were inferred not only by analysis of behaviour but also by observation of the changing colour patterns (for which cf. Fig. 12, p. 77).

The colour patterns assumed at each stage are shown along the bottom of each figure, each by its code number.

For the general mode of illustration, compare Fig. 4, (p. 53).

The figures show how in both types of courtship sequence *the drives of flight and attack are eventually reduced to give the mating drive free play.*

the nest, to which he will eventually lead her. At a later stage, he performs a displacement movement derived from that of fanning the eggs (cf. p. 92), which serves as a signal for the female to pass right into the nest and lay her eggs. During courtship the female herself adopts an appeasement posture as different as possible from that of threat in this species (cf. p. 98). Once the male has followed the female into the nest and fertilized the eggs, the consummatory act of fertilization lowers his mating drive abruptly (p. 80), and his attack drive reasserts itself. He follows the female out at the other side of the cylindrical nest, and chases her from his territory; thus the eggs will be in no danger of being eaten by her.

Sometimes courtship occurs in stages. In the zebra finch, the male's tendency to attack the female is removed at an early first stage. When proceeding actually to mate, his problem is that of reducing his flight drive. Like many small birds, he normally keeps a definite and characteristic distance away from any other living object, including individuals of his own species (Hediger, 1955). He now has to nerve himself to approach the female in order to mate, and he does this by means of a curious *pivoting* dance, as Morris has called it, in which he edges along a twig towards her, alternately facing towards and away from her, as shown in *Fig. 26*.

In biparental species a territory is often defended by both partners, so both are liable to have high levels of attack drive within the territory. Mutual appeasement must now take place, to lower the attack and flight drives which might be released in each by the least trace of threat in the other. The most elegant example is the head-flagging ritual of the black-

headed gull (p. 97 and *Fig.* 20, p. 95). Within the territory, then, the male is dominant in some species, submissive in others, and neither in a third group. In species without fixed territories, such as some fishes which fertilize internally and bear young alive, there may be little tendency to attack or flee in the male, and in the female only a tendency to flee. Here we find ceremonies like that of the sword-tail fish, mainly concerned to head off the female and prevent her from fleeing until she is prepared to mate. The courtship of the guppy also takes this form, though here the male has also to reduce tendencies in himself to attack or flee (*Fig.* 25, p. 202).

In biparental species, the two partners must live together for some time, interacting co-operatively while caring for their young: they must pair (p. 200). Courtship ceremonies and postures cannot be carried on persistently over long periods, for this would be incompatible with efficient execution of parental behaviour. The pairing process therefore involves several stages. First, there is a sort of experimental phase, in which a compatible partner is found, one whose moods are in harmony with the wooer's—in other words, one who reacts suitably to his courtship signals. There follows a phase of prolonged and intensive courtship, as a result of which the two partners become *familiar* with each other (p. 138) as recognizably distinct individuals, and no longer as bundles of key stimuli. This process of familiarization, in Morris's phrase, 'renders the suppression of attacking and fleeing tendencies *irreversible in respect of one individual of the opposite sex*' (his italics). The process in no way implies intelligent mutual behaviour. Its instinctive nature is best shown by the phenomenon of redirection activity (p. 90), common in, for instance, paired black-headed gulls. One partner will often go out of his way to search for objects which will release his attack drive—other gulls in the colony or birds of other species. On these occasions it can be seen that his partner is simultaneously releasing and (by virtue of her familiarity) inhibiting his attack drive, which he must vent elsewhere to dispel the conflict. This particular process of familiarizing conditioning is called the *pairing bond*. In due course, persistent courtship becomes superfluous and need only be repeated in occasional spells at intervals. In this brief account we are greatly simplifying a diversified subject. But it remains true that courtship and pairing between them account for the suppression of mutual attack and flight between mating lower vertebrate animals.
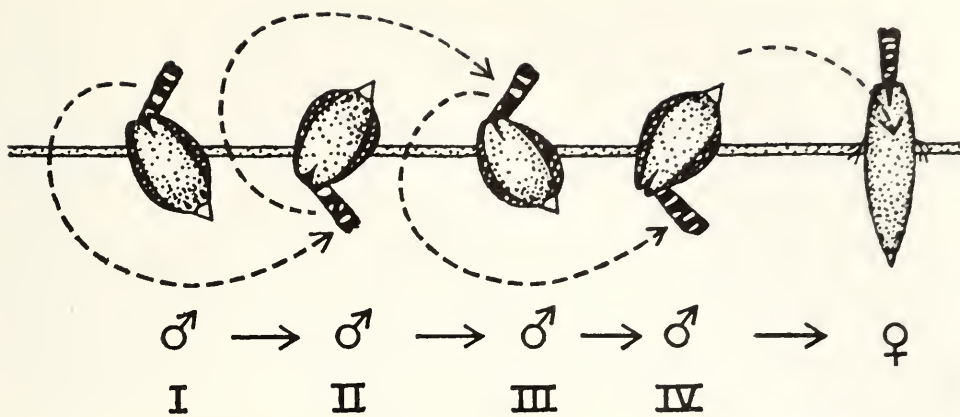
FIGURE 26—THE PIVOTING DANCE OF THE MALE ZEBRA FINCH
(From Morris, 1954a, Fig. 7)
The movements of the pivoting dance in the male zebra finch, seen from above.
♂ = position of male
♀ = position of female
Four successive stages of the ceremony are shown—I, II, III and IV. The broken arrows show how the male moves from one position to the next. The long bar running along the diagram is a twig on which both birds are perched.

As the figure shows, the female remains stationary, facing across the twig. The male moves towards her in a series of pivoting movements, swinging from side to side. His tail moves through an even wider arc than his body. The dance can be seen as the outcome of a conflict between flight and mating drives, the former causing the male to avoid the female, the latter to approach her.

Parental Behaviour in Animals

The problem of suppressing inappropriate reactions arises in more intense form where parental behaviour to the young is concerned. The young are at first specially vulnerable, unable to defend themselves against parental attack by flight or retaliation, and unable to feed or care for themselves if the parents leave them. The inappropriate reactions they can release in their parents are much more varied than those that mates can release in each other. The young can serve as stimulus objects for competitive attack, anti-predator attack, flight, predatory feeding, and even the reaction of removing rubbish from the neighbourhood of the nest. They can also release *mating* reactions. And they are obviously likely candidates for redirection by one mate from the other. All these inappropriate reactions by the parents must be suppressed.

This problem has been much less systematically studied than that of courtship. There is probably much evidence scattered in the literature of animal behaviour, but there is urgent need for extensive review and systematic research. So far as we are aware, the only systematic unified discussions of the problem, and those extremely brief, are to be found in one of Tinbergen's books (1953*a*, Chapter III) and in the paper on which the present book is based (Russell and Russell, 1957). The brief account that follows is based mainly on the conclusions of that paper (to which reference should be made for details of evidence), supplemented by later discussion with Professor Lorenz (who is, of course, not responsible for any defects in our account). (A fuller review has just been compiled —Russell, in press, *c*.)

We are now concerned only with the behaviour of both parents in biparental species and of the rearing parent in uniparental species (the reactions of non-rearing parents to their eggs and young are usually simply predatory). Inappropriate reactions of rearing parents to their young can readily be seen in captive animals, often extending to infanticide. This alone shows that their suppression in the wild is secured by a delicate balance of instinctive mechanisms, easily disrupted by the conditions of captivity, unless every attempt is made to approximate these to natural conditions (cf. Lorenz, 1940, 1950; Hediger, 1955). But evidence from field observations shows that such inappropriate reactions occur in milder form (as intention movements) even in natural conditions (Hinde and Tinbergen, in observations reported in our paper; Marler, 1956; Forselius, 1957). How are they kept within bounds and permitted to express themselves only in harmless intention movements?

There are several answers. In some species the parents become familiarized with their own young as recognizably distinct from others, and have their flight and attack reactions specifically and irreversibly suppressed in much the same way as in pairing—the family bond. This familiarization process can be impressively precise. 'There is nothing a swan attacks so furiously as another swan's cygnets, but you'll never see even the slightest intention movement of attacking his own' (Lorenz, personal communication). But this process is not universal, and must be supplemented by other mechanisms while it is being established, even though this establishment is sometimes rapid.

Positive parental care itself is often released by innate key stimuli. Some of these are based on anatomical or behavioural properties common to the young of many species, such as short face in relation to large fore-

head (or its equivalent), or clumsy limb movements. These stimuli are naturally widely distributed in vertebrate species with parental care, including even man (Lorenz, 1943. The persistence of such releasing mechanisms in man may perhaps help to determine differential treatment of children in the same family who differ in anatomical features. But such mechanisms, like those of familiarization, can be completely over-ridden in man by the process of projection—p. 214). In lower animals, it is very doubtful if the release of positive parental behaviour is in itself sufficient to prevent inappropriate reactions.

Suppression of inappropriate reactions is, however, brought about from the outset by various combinations of two linked mechanisms in parents and young respectively. In many species, the hormonal balance of the rearing parents is altered in a sequence accurately synchronized with the birth, laying or hatching of the offspring. At this time, the hormone prolactin may be circulated in large amounts in the blood-stream, and it suppresses the output of those sex hormones which control the mating and attack drives. This influence may be more important for suppressing inappropriate reactions than for promoting positive parental behaviour itself. When ring-doves with previous experience of breeding are treated with the hormone prolactin, they will carry out the activities of feeding young doves ('squabs') which are still on the nest, although these squabs are not their own, and they are not themselves in the parental phase. Adult birds not treated with prolactin will not feed the squabs in spite of previous experience. When birds are used which have *not* had previous breeding experience, treatment with prolactin does *not* induce feeding of the squabs, which depends on a complicated conditioning process. But quite irrespective of breeding experience, the hormone markedly affects the appearance of inappropriate reactions to squabs. Birds not hormonally treated perform a considerable amount of attack and courtship behaviour towards the squabs. These reactions are almost entirely suppressed by treatment with the hormone (Lehrman, 1955).

Meanwhile, arrangements are usually made to ensure that the young themselves are as unlikely as possible to release the executive behaviour of the inappropriate drives. At first this may be achieved by the colouring of the young. In many bird species, juvenile plumage is not only useful for purposes of concealment (p. 135), but also particularly unlike the colours and structures of the adult which release competitive attack (Lorenz, 1934, 1935; Hinde, cited in our paper). At first, also, the relative inactivity of the young may protect them from releasing inappropriate

reactions. As the young grow and near the stage when they will be independent and able to feed themselves, the situation becomes more delicate and the adults may become more and more timid or aggressive in their presence. The resulting danger is averted by the development in the young of postures and movements of *appeasement* and *reassurance*. (We may now usefully distinguish appeasement, designed not to release attack, from reassurance, designed not to release flight.) Young gulls, as their plumage begins to change, creep about the colony in a peculiar hunched posture, which protects them from attack; this may be watched at any zoo. Thus they are tided over the intermediate period.

Sometimes these behavioural interactions begin quite early. In chaffinches, the young fledgelings beg vigorously for food and apparently release a certain amount of fear in the parent, who feeds them in a special posture, with feathers sleeked smooth (usually a prelude to escape), approaching the young no nearer than is absolutely necessary. But the parent is reassured by a peculiar sequence of movements shown by the begging fledgeling, which Marler (1956) calls *rocking*—Fig. 27. The fledgeling alternately turns towards and away from the parent. Every time it turns away, it seems to offer the exact opposite of a threat, much as in head-flagging (p. 97, *Fig*. 20, p. 95).

Before ending this brief account, we must recall that in mammals, and especially in primates, the reproductive hormones increasingly lose control of behaviour (p. 140). Instead, mating and parental behaviour are more and more controlled by the enlarging cerebral cortex. One consequence is a change in the operation of instinctive breeding mechanisms. Instead of a high level of internal drive being merely released by external inputs (p. 76), the reproductive drives tend increasingly to be *aroused* by external inputs. Change in the mood of a mammal comes increasingly to depend on changes in the environment. Adult mice require no prolactin to rear young and treat them appropriately. All the parental behaviour can be induced in any adult mouse of either sex and in any hormonal state, merely by presenting it with baby mice (Beniest, 1957). Of the parental behaviour of primates, we shall not attempt to speak. Far too little is known, and an urgent research priority is the study of parental behaviour in the intricate social conditions of the monkey colony (p. 138).
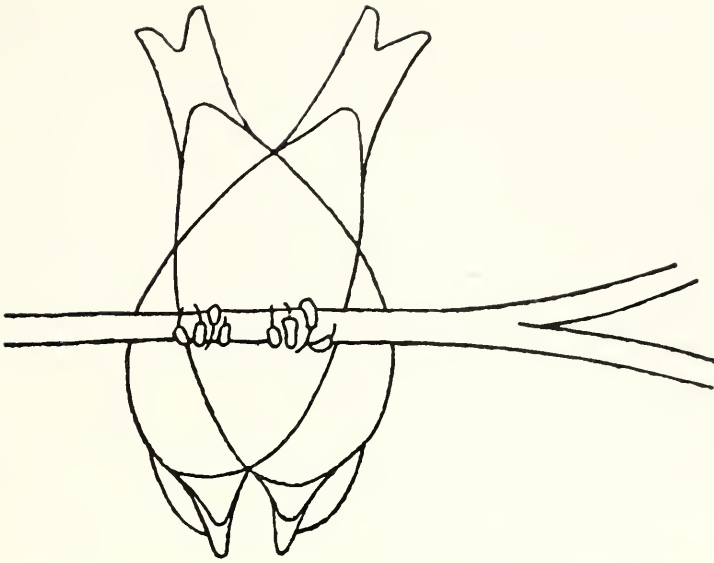
FIGURE 27—THE ROCKING REACTION IN THE FLEDGELING CHAFFINCH
(From Marler, 1956, Fig. 11 (b))
Two phases of the rocking reaction in the fledgeling chaffinch, seen from below the twig on which the bird is perched. This reaction is shown when the young bird is about to beg for food from an approaching parent. The fledgeling turns alternately towards and away from the parent. Each time it turns away, it seems to be reassuring the parent, since this movement is the extreme opposite of a threat. The parent can therefore overcome its tendency to avoid the young bird. (Though the mood and function may be different, it is interesting to compare the rocking reaction in a general way with the pivoting dance of the courting male zebra finch—Fig. 26, p. 205.)

Mating and Parental Behaviour in Man

With the appearance of intelligence, the whole nature of reproductive behaviour must undergo a profound change. The first obvious implication of this change is the un-gearing of mating behaviour from reproduction. In lower animals, breeding can only be achieved by a close automatic relationship between mating and parental behaviour. For an intelligent species, the position is different, for the production of children can now be brought, in principle, under intelligent control. We are no longer subject to the cyclical arrangements of lower mammals (as the unwary are constantly finding out when they use the so-called safe period). Everything we know of the nervous and hormonal circuitry involved supports the view that the timing of conception (like all other

bodily processes) is, in our species, under behavioural control. But the process is almost universally dissociated from conscious supervision by the mechanism of attention, and remains at the mercy of unconscious fantasies. A detour brings the process at least partly under conscious control. We make up for our failure to control our own bodily activities by using medical appliances such as drugs. Similarly, we have to some extent achieved an external birth control by the development of contraceptive devices. Thus sexual behaviour can take place freely without the birth of children and is no longer exclusively linked with reproduction.

This has two consequences. First, sexual behaviour itself becomes available for other purposes. In the monkeys, where the transition is on the way, sexual behaviour is used for appeasement purposes (p. 143). In ourselves, the potential value of sexual behaviour is something quite new. It can promote the capacity of two people of opposite sex to cooperate and communicate, not only with each other but also with any other people they deal with, including their children. In the activities of love-making, the enjoyment of each is heightened by the enjoyment of the other, as each continuously communicates his or her feelings. Even in lower mammals, individuals of high sexual activity are particularly ready for and successful at exploration of new environments. This correlation seems to continue in man as a strong positive relationship between sexual activity and intelligence, especially social intelligence (cf. Kinsey *et al.*, 1948). This is not surprising, for both activities are now initiated by the cerebral neocortex.

Second, the process of reproduction takes on a new form, an extreme expression of a tendency in the evolution of the vertebrates. There have always been two main paths for animal reproduction. Either parental care may be dispensed with, and vast numbers of germ cells expended to ensure some survivors, or the number of fertilizations can be reduced to a minimum, but the greatest care taken of the few offspring produced. Obviously only the second method is compatible with the evolution of an intelligent species (cf. p. 187). In fact, to take one instance of the tendency, there has been throughout primate evolution a steady decrease in the number of young born in one litter, so that in ourselves twinning is a rarity, and simultaneous production of larger numbers rarer still (Zuckerman, 1933).

The upshot for intelligent human reproduction is clear, and a reasonably informed guess can be made about the most satisfactory course it can take at the present stage of human evolution. We may suppose, to

begin with, a period of sexual experiment, in which each individual is looking for a member of the opposite sex with whom he or she can have the most enjoyable intercourse. Such experiments may one day be purely imaginative; that is, it will be unnecessary to have actual intercourse with potential partners until the right one is found by accurate interpretation of mutual intention movements. At present this is a counsel of perfection, and some overt experiments are usually necessary. Once two partners have found each other, there is no reason why they should not remain in exclusive monogamy. There is no limit to the possible variety of sexual enjoyment between two people of opposite sex who are untroubled by mutually hostile attitudes, and the art of love improves indefinitely with mutual experience. Attempts to seek other partners, once the experimental phase is over, can only be ascribed to some block on the free progress of the original relationship.

Once such a partnership has been formed, the first requisite is present for the successful rearing of young: for the first requisite is the happiness of the parents. An intelligent couple, while steadily improving their relationship, will proceed, within the economic and social conditions of their culture, to bring about conditions in which they can fully provide for, and devote as much attention as possible to, any children they may have. Only when these conditions are obtained will they proceed to have children.

Nobody in the slightest degree familiar with the facts of life as lived at present will mistake this for a portrait of any but exceptional couples, though if there were not at least a trend in this direction our condition would be much worse than it is. (Notice that birth control in some form has always characterized the most successful—the European— civilization.) In actual fact much of present human reproductive behaviour looks much more like the instinctive sequence of lower animals, though far less delicately balanced and lacking in most of the controls. In many cultures, young but mature human individuals are discouraged from experimenting, which is confused in the minds of many with permanent and aimless promiscuity. On the contrary, they are encouraged to hurry into culturally controlled marriage, often a sort of parody of the monogamous relationship, and which in fact has much more in common with the pair bond of animals. If the right partner has not been found, the resulting union will be as instinctive and compulsive as any observed in animals. The partners cannot fully enjoy themselves, and the result is an increasingly competitive and exploitive relationship, in which

rage, fear and mutual hostility play a considerable part. Such a union may end in divorce, to be followed by repetitions of the pattern. Or, by a final irresponsibility, the partners may be advised to save their marriage by producing children as soon as possible. This is as good as advising them to use the child, when it comes, as an object for displacement and redirection, and as an instrument or weapon for mutual exploitation. Instead of extending to the child the co-operativeness they have fostered in their own relationship, such a couple will use it for the resolution of conflicts within and between them, so that it may release in them re-actions of fear, attack, sex (of a distorted kind) or revulsion, while it will be groomed for a complex role as the stabilizer of their own mutual exploitive relationship. Any advance on the child's part to independence and happiness will now arouse competitive envy; it is intended for uses which have no relation to its own happiness. (The use of the word 'it' for a small child is a sinister enough linguistic practice. For convenience, we shall mainly use the masculine gender in what follows. It is high time a pronoun was invented to refer to a human individual without speci-fying a sex.) Such parents are not really in a parental phase, since neither has found a suitable partner. This will be true whether or not either is overtly sexually unfaithful. Compulsive faithfulness is only a special case of loyalty (for which see p. 164).

This is a fair account of the *instinctive* aspects of marriage in our own culture (amplified in Chapter 6). But usually some co-operative tenden-cies will be mingled with all this, and much of the hostility felt mutually and towards the child will usually be unconscious. We must also be clear that some marriages are appropriate, and merely prevented by exploitive interactions from being enjoyably developed; while others are quite inappropriate and should be dissolved in everyone's interest and without mutual hatred. Even this solution may be culturally opposed, for it reminds others of what they seek to forget—the fact that culturally controlled marriage is not necessarily the same thing as a happy sexual relationship. Hence those who seek divorce may only be permitted to obtain it if they either hate each other or pretend to do so, and if one partner appears to wish to perpetuate the farce, and is in a position to heap moral blame on the other. All this is connected with the notion that human beings can be regarded as property (p. 162).

Parents, who are sexually frustrated and maintaining an uneasy mutual balance of rage and fear, may redirect on to their child the drives of sex, attack and flight, as well as other inappropriate feelings, and may seek

to use him against each other in various ways. The controls available in animal instinct systems, which we considered in the last section, are neither efficient nor universal in man. We have no universally applicable postures or gestures for inhibiting attack or flight (Lorenz, 1952). The most generally effective is the postural expression of self-assurance, which we cannot commonly expect from a young child. Nor are there hormonal mechanisms, geared to the physiological activities of reproduction, to suppress the inappropriate drives in the parents. Appeasement and re-assurance by the child can only take one form, and here we come to the crux of the matter. Anyone with an elaborate defence system may express overt competitive hostility when this is in any way challenged (p. 159). Hence the only way for a child to appease is to conform in every detail with the role required of him in the (often incompatible) fantasy worlds of his parents. Thus we arrive at seeming paradoxes. A parent may, for instance, compel his or her child to be overtly rebellious or even domin-eering, and in this strange world rebellion or even domination of the parents may be the child's only mode of appeasing them, and preventing overt expressions of hostile threat. The only general principle of this appeasement is that the child's behaviour must be more and more closely determined and automatic, the details being determined by parental influence.

Approval by the parents means simply the absence of overt threat or expressions of other competitive attitudes. Obtaining parental approval means obtaining a cessation of overt threat. It does not imply that the parents are no longer hostile. This is confused by the rationalization that cessation of approval means 'the withdrawal of love and affection'. From the way in which we have defined love (p. 147), it obviously cannot be alternately granted and withdrawn. One's attitude to another person is co-operative to a definite extent all the time. But this rational-ization is often imposed by parents on children, who are thus led to confuse love with the mere absence of overt threat or attack or revulsion. ('Mother won't love you any more if . . .' 'Now mother loves you again. . . .' etc.). In his special position of immaturity, the child must seek approval, and he can only get it by complete conformity with the explicit or implicit instructions conveyed by the parent. He will the more readily accept the deceptive rationalization that approval and love are identical, since he is so anxious to believe that his parents' attitude is co-operative; he feels he can ensure this by conformity.

The Mirror in the Bonnet

Inappropriate reactions of parents to their children are naturally rationalized. In particular, redirection of hostile attitudes from each other to the children is rationalized by projection (cf. p. 125). It is astonishing how many contradictory and adult emotions are ascribed to babies and young children. They are supposed to make huge demands on their parents— that is, to attempt to exploit them. They are supposed to be capable of savage competitive feelings, and to wish to kill their parents. They are credited with fiendish qualities of envy and jealousy. They are supposed to be sexual perverts. Any given baby is at once assumed to be exactly like father, mother or some relative. Within a couple of weeks, two children are said to be totally different, and to resemble respectively one or other parent. Male babies may be described as already looking effeminate, and female babies as already little viragos. When they begin to talk, they are credited with prurient curiosity; when they begin to move about they are credited with every vice. They are supposed to enjoy being dirty, and to take a special pleasure in relieving themselves at inappropriate times and places. According to one of our patients, all children are cruel to animals. In short, they are little savages, imbued with every kind of original sin. It is true that they can rapidly be *made to conform* to such a picture; but none of them start like this.

In particular, they may be accused of having upset the relationship between their parents, and are often persecuted on this account. The convenient assumption can then be made that all was well with this relationship before they appeared on the scene. This rationalization has been beautifully expressed in some treatments of the myth of the Garden of Eden. Everything in the Garden was lovely until the arrival of the serpent, who seduced Eve into eating the apple and persuading Adam to join her; the honeymoon was then over, and the unfortunate couple had to work like slaves. In the fine museum at Innsbrück founded by the Emperor Ferdinand I, there are several intriguing representations of the myth, some in the form of paintings, one in the form of fine enamel decorations. The successive scenes of the drama appear in little serial pictures, after the manner of a cartoon strip. In two of these treatments,* it is startling to compare two pictures: that of the temptation by the serpent, and that in which, after the expulsion from Eden, the first child (presumably Cain) appears on the scene. For *the serpent is equipped with*

* A mural of the late fourteenth century, and a cloth dated about 1460.

a human face—the face of the child in the later picture. In other words, the child is credited with all the mischief done to the relationship between the parents *before he was born!* He is labelled in this way as a seducer, deceiver and fixator of his innocent and exploited parents.

One last picture, and we can leave for a moment the subject of projection (of which anyone can secure examples if he observes himself or others in the presence of children). Not long ago, we observed a display in the window of a London shop which was advertising a clearance sale. (The proprietors kindly allowed us to photograph this display, which they did not alter in any way, and we have it on permanent objective record. It was in no sense stage-managed or even touched up by ourselves.) This display may be taken as a supremely apt illustration of the subject of this section. It was obviously designed, with unconscious skill, to appeal to one of the most incorrigible automatisms of human behaviour. The display showed a baby's bonnet, and within it, where the baby's face might be seen, was a *mirror*.

The Role of Intention Movements

All too many parents in history have displayed proconscious overt hostility towards their children. It is not difficult to find examples of parents murdering their children, parents sexually seducing or raping their children in the mode of Count Cenci, parents selling their children, and ill-treating them in many different ways. Sometimes the right to do such things has been recognized by law, as in the Roman father's right to murder his children with impunity. In our own culture, however, law and public opinion exercise greater control, criminal cruelty to children is the exception, and by far the greater part of inappropriate reactions to children are unconscious; and unconsciously hostile parents are prepared to explore their own behaviour and correct it if they know how to set about this. It is true that proconscious rationalized or moralized reactions of a milder kind are widespread. For instance, it is quite customary to treat children and adolescents with a *rudeness* which would not usually be tolerated in social intercourse among adults.

Unconscious hostility will be expressed by parents in one or both of two ways. One is by sudden outbursts, in gusts of uncontrollable rage or revulsion—'brief madness', as Horace called it with precision. Such outbursts will be regretted afterwards, but they may act as *traumatic*

situations for the child. Moreover, the parent, instead of investigating his own behaviour and seeing how the outburst came about, may feel *guilty*. Guilt is a mechanism designed to avert blame by forestalling it, and intensifies the behaviour it purports to deplore, by dissociating it still more sharply from other behaviour.

More commonly, unconscious hostility (and the prohibitions and commands it generates) is expressed in intention movements—postural, gestural, verbal, by choice of words, turn of phrase, metaphor, intonation and so forth. Such implicit instructions may conflict with intentional and explicit ones; a parent may explicitly demand one course of action from the child, and implicitly the exact opposite. This sort of expression creates for the child a *chronically* stressful situation.

The refinement with which such patterns of intention movements may be interpreted, and the resulting signals acted upon, is remarkable. Our domestic animals have acquired considerable efficiency in this respect (cf. p. 145). Lorenz's dog Tito used to bite, selectively, any person with whom Lorenz was feeling annoyed, even though he was carefully concealing his annoyance (successfully, so far as the irritating person's attention was concerned), and even though there were several other people present (1952). Lorenz was aware of the impulse in himself which his dog was acting out for him, 'but few people are so able or honest in their self-observation, and most parents are surprised by behaviour in their children which is just as directly dictated by their own as Tito's was by her master's' (Russell and Russell, 1957). Horses are sometimes as adept as dogs in this respect. The most famous was the horse called Clever Hans, who, in the presence of his trainer, was able, by tapping a certain number of times with his hoof, to answer elaborate problems in mental arithmetic, set by marvelling psychologists (not to speak of the general public). As was later discovered, he was reacting with extraordinary precision to the movements of his trainer (cf. Hediger, 1955). Monkeys have had occasion to evolve abilities of this sort (p. 145), and human capacities in this field are certainly more than equal to those of Clever Hans. Some time ago, Soal meticulously investigated the case of a theatrical performer called Kraus who claimed to be able to locate hidden objects by telepathic communication with people who knew where these were hidden. He would, for instance, choose from a number of closed boxes the one in which some object had been placed. He could still do this when his agent (the person who knew which was the right box) was wheeled round with him completely encased in a sort of mobile

sentry-box, provided the agent's head stuck out visibly at the top, and even though the head was completely covered by an opaque hood. Slight head movements were evidently sufficient for Kraus's purpose. Telepathy itself need not be invoked in this particular case, for Kraus failed when his agent's head too was hidden in the box. He explained this by saying 'that this only proved that thought could not penetrate wood—a view to which many university teachers would subscribe' (Soal, 1956).

This sort of facility on the part of domestic animals makes them efficient indicators of the state of mind of a human individual, unconscious to himself. One of us once had a cat which, when a certain visitor approached to stroke him, streaked from the room and did not return until she had gone. The visitor was surprised, because, she said, she was very fond of cats. Not long after, she happened to mention that she had dreamed the previous night of strangling a cat! This cat was never to be found when a certain veterinarian called; the man had on one occasion suggested in conversation that the cat should be castrated. The animal was also a useful assistant. When present in a room during psychoanalytic sessions, he used to act out a patient's feelings at a given moment (by reacting violently to their expression in very slight intention movements by the patient), before the latter had reported them to the analyst. Ordinary parents, however, are not always inclined to regard such behaviour by their children as helpful interpretations of their own state of mind.

Children frequently react to implicit instructions in preference to explicit ones. Their position is not unlike that of the Roman senators under the Emperor Tiberius, as presented in Robert Graves's novel *I, Claudius*. These yes-men finally found out that when the Emperor spoke in a stilted style in favour of some measure, he wanted them to vote against it; when he spoke similarly against a measure, he wanted it passed; when he spoke simply and bluntly he wanted to be taken literally. But the solution for children is rarely so simple.

We take a final illustration from Cathy Hayes's account of the rearing of a baby chimpanzee by her husband and herself (1952). This chimp, Viki, was deliberately treated exactly as if she were a human child— an exacting task for her devoted 'parents', who were studying primate behaviour and chose this heroic way of doing it. They once took the chimp to a party at the house of the director of their research institute. They were astounded at the care and discretion with which she behaved;

she was, for instance, scrupulously careful not to lean on a table containing fragile objects. 'Of course', writes Mrs Hayes, 'she is not usually this well-mannered, and it is possible that she had caught our mood of self-restraint and awe at the shiny new house—which was also the home of our boss'. It is tempting to quote more from this attractive and unique book. It tells us much about chimpanzees, but even more about human parental behaviour. The Hayes were trying to treat Viki exactly as most children are treated, but they observed *their own* behaviour far more closely than most actual parents. They were constantly able to detect in Viki's behaviour reactions to their own, and Mrs Hayes accurately records mistakes on their part which are made in abundance by parents in dealing with children, but rarely so scrupulously recorded. Children, however, are not chimpanzees, and before we proceed further we must consider how human intelligence develops, and what we may suppose to be the requirements for intelligent parental behaviour.

The Development of Intelligence

In lower animals, parental care is required only until the young have developed, by maturation or conditioning, the instinct system characteristic for the species, by means of which they can satisfy their routine needs and avert emergencies. The instinctive behaviour of parents and young is geared together to this end. Everyone knows, for instance, the defensive behaviour of the hedgehog. The Greeks had a word for it— 'the fox knows many tricks, the hedgehog one good one'. This rolling-up trick matures in four stages, with an interval between each. The first stage, for instance, merely consists in the young hedgehog slightly tucking in his nose when alarmed. Until the fourth stage, which completes the rolling-up, the movements are quite useless as a defence. Until this fourth stage is reached, the young hedgehog runs back to its mother whenever she utters a squeak of alarm, which she does whenever danger threatens her young. As soon as the rolling-up behaviour is complete, the reaction to the mother's alarm call disappears (Morris, personal communication).

In man, parental care is needed for a far longer period, to permit the development of intelligence. A mechanism of such wonderful properties naturally takes a long time to reach full working order. Of the way in which it develops we know something from the work of Piaget and his

collaborators (reviewed by Piaget, 1953). The first great crisis is the development of speech, and not surprisingly Piaget marks the end of a first stage of development at about the age of two. The second great crisis is that of puberty (p. 268), and not surprisingly Piaget ascribes his last stage of development to the period from eleven to fifteen years. Between these phases, there is a gradual fusion of isolated or dissociated integration processes (we may suppose a similar fusion to have occurred in the evolution of intelligence—Russell, 1953). Piaget observed, for instance, the opinions volunteered by children about 'two balls of modelling clay of similar dimensions and weight', one of which is moulded into a sausage shape. Three questions may be asked: '(i) Does the altered ball still contain the same quantity of substance as the unaltered one? (ii) Does it still have the same weight? (iii) Does it still have the same volume, measured by the amount of water it is seen to displace?' A child may at first deny that the altered ball contains as much substance, on such grounds as: 'There is more clay than before, because the thing is longer' and 'there is less because it is thinner', etc. A year or so later, the same child will assert that the altered ball *does* contain as much substance as the other, on the grounds that its alteration is reversible, that what it has gained in length it has lost in thickness, and that nothing has been added or taken away. But at this point the child will deny the conservation of weight, on the same grounds used earlier to deny the conservation of substance. A year or two later still, the same child will accept conservation of weight, but still deny conservation of volume; and later still the conservation of all three properties is finally asserted on the grounds used first for conservation of substance.

By such a gradual progress of generalization and integration, the exercise of abstraction is progressively generalized to cover all aspects of experience, until an integrated personality is attained. Once this is done, the imagination can operate in a similarly unified way, setting up general hypotheses about the real world which give predictions open to systematic test. But until this stage is reached, the child is liable to organize his experience in dissociated blocks. This makes him peculiarly vulnerable to the processes of distraction, condensation and deception (see Chapter 3).

Earlier still, during the first months of his life, the child has barely begun to develop an intelligent personality, and to tide him over this phase he is equipped with a few simple primary instinctive drive mechanisms, some of which may be supplied with innate motor fixed patterns,

such as those associated with feeding at the breast (Prechtl, 1953, 1958; Prechtl and Schleidt, 1950, 1951). The satisfaction of the baby's needs requires from him some capacity to communicate them to his parents, for instance by various forms of vocal expression which are misleadingly lumped together as 'crying'. Even a well-reared baby will sometimes also feel rage or fear. His natural reaction, not only to his needs but to emergencies, is to signal them to his parents. This signalling constitutes, in the early stages, both his appetitive and aversive behaviour. If the parent correctly interprets the signals, he can remove the danger or irritant whose presence is signalled by the child. Parental behaviour therefore consists at first in correct interpretation of the appetitive and aversive signals of the young. As the child becomes increasingly able to carry out his own constructive and aversive behaviour directly, the instinctive signalling proportionately decreases, and the requirements for parental behaviour also decrease, until the child's intelligence system matures, when he can integrate high levels of rage and fear as rough guides to a situation in his environment (p. 102). A similar result is achieved in a less perfect way by the instinctive automatic interactions of animal parents and young. Owing to their instinctive nature, mistakes are liable to occur, and, as we have seen, parent animals are liable to react to the signals of their young with rage or fear. This secondary situation—the misinterpretation of the signals—is corrected by additional signals from the young, of appeasement or reassurance, which specifically reduce the parent's rage or fear. As we have seen, too, misinterpretations and restoration of equilibrium in this way constantly increase as the young mature.

Defect in this system can arise in animals if there is genetically determined defect in either the parent's or the young's capacity to signal correctly. Such defect in human young should be of limited importance, for a human parent could compensate for it by the use of his own intelligence. There is no need here for instinctive coupling of parent and child. The parents should be able to respond by abstraction instantly, continuously and unerringly to the needs of the baby, especially if they have developed their abstraction capacity to a high pitch in their own mutual relationship, for instance in love-making.

But *projection* by the parents must cause havoc. It ensures that the parent misinterprets the child's signals, and is then liable to react to them inappropriately. Pathologically intense rage and fear are aroused in the child when his signals are misinterpreted, and he has no simple corrective devices like the rocking reaction in the chaffinch (p. 208). He can only

reduce the parent's irrational rage or fear by conforming to the latter's defence system. But such conformity is incompatible with the correct signalling of his own needs. Hence his signalling becomes distorted, and a vicious cycle is set up. By the time his intelligence is due to mature, his self-confidence and self-security are severely disturbed in advance, and full development of his intelligence at puberty has become impossible. In particular, a parent is liable to project exploitiveness, and feel that parental behaviour on his part is not a natural appetitive behaviour of his own, but a reaction to an exploitive demand made by the child. This will lead to an attempt by the parent to exploit the child in a particular way—*by making the child do his own parental behaviour*. Thus, instead of accepting, as part of the appetitive behaviour of rearing a child, the need to look after his bodily comfort by keeping him clean, the parent may early and intensively toilet-train the child with the object of saving himself some of this 'trouble'. *The child is thus made to supply, by his own behaviour, defects in the parental behaviour of his parents: this is the fundamental relationship of infantile dependency.* Such behaviour by parents, being totally unrelated to the needs and capacities of the young child, invariably causes them much more 'trouble' later, and a vicious cycle is set up, in which the child's capacity later to do his *own* appetitive behaviour, when this would become appropriate, is seriously impaired. The projection of exploitiveness then appears to be confirmed. Similarly, a child, whose crying (initially a correct signal of some need or emergency) is reacted to as a demand, will begin to cry in a querulous manner. Thus he appeases and reassures the parents by supplying apparent confirmation of their projection. The more a child is exploited, the more dependent he becomes on instructions or hints from his parents.

When the child begins to speak, his intelligence begins to develop in the way we have sketched earlier. Ideally, he should spend his childhood largely in accumulating experience, in exploration and imagination of social situations. In adolescence, he can then begin to develop executive modes of social behaviour based on his now unified experience. The success of this progression will depend on the graded way in which the child and adolescent encounters problems of increasing difficulty. If confronted with a situation of social stress in which he is still inadequately equipped for exploration and response, his self-esteem will sink. Ideally, then, the individual's childhood should be spent in social surroundings where he can gradually mature and deploy, at first in his own family, the human capacity for co-operative social intercourse. In adolescence, he

should then be able to extend this to wider and wider circles outside his family, and in particular to begin exploration for a mate; all this on the secure foundation of a self-esteem continuously increased by success in dealing with social problems of gradually increasing complexity.

The Attitude of Parents to Exploration by the Child

In so far as the parents are co-operative, they will encourage their child to explore, carefully grading their expectations to his capacity so that his self-esteem rises and he becomes increasingly independent of their help—except in so far as the intelligence of every adult is multiplied by co-operation and communication with his fellows. But in so far as the parent's attitude to the child is hostile, he will do everything to hamper the latter's explorations (p. 171). The situation becomes critical when the child first begins to talk. The first thing he is likely to investigate, as a matter of prime concern to himself, is the nature of the relationship between his parents. But this is precisely what they are impelled to conceal from themselves and each other, for the rationalizations they have built up about it are crucial for the maintenance of their own defence systems. Exploration by the child thus impinges on their false self-confidence and self-security, and arouses irrational rage and fear. (To arouse fear in a parent is just as distressing for the child as to arouse rage: the latter leads to threat or attack, the former to aversion and hence neglect. In later life, irrational concern with appeasement stems from the one, irrational concern with popularity from the other. Compare the situation of the leper in the Middle Ages—terrible enough, although he aroused not universal rage but universal fear.)

Hence arise the notions of the tactlessness and importunity of children, of the *enfant terrible*, like the one in the Andersen story (p. 128). Particularly ironical is the game of bluff played over the much-debated question of whether and when to tell the children about the 'facts of life'. The grim joke is that parents who debate this question do not know these themselves. They assume that the child is primarily concerned with the details of the overt sexual relationship between them, when in fact the child's main interest is centred on the extent to which his parents' mutual relationship is a co-operative one. One of our patients, who had recently stopped sleeping with her husband (in the literal sense), was asked by her little daughter whether 'she and Daddy were still friends'.

The mother, from laudable conscious motives, launched into an elaborate discourse on her sexual relations with her husband; she was surprised when her daughter seemed to lose interest in the conversation. Much more damaging, of course, is the double bluff practised by those who shroud the whole subject in a secondary concealment, which confuses the child into losing sight of his original interest. In this connexion we may mention the true story of a pair of parents who, with the best intentions, bought a pair of hamsters 'in the hope that they would breed and thus admirably inform the children about reproduction and family life in mammals' (Nicholson, 1957). The hamsters duly bred, and gave birth to a litter. But hamsters are uniparental, and the male should not be confined with the female after fertilization. The human parents repressed the obvious indications of this, and so—'Alas! Father hamster killed Mother hamster and ate the offspring!'—an elegant return of the repressed problem of communication.

The attitude of parents to their child is likely to become more overtly hostile when the latter first begins to speak, to explore the relationship between them, and to communicate his findings in the form of statements or questions to be verified. Conversely, the parents may find infants (i.e., babies still unable to talk) a source of spurious relief from the social difficulties of their own relationship. A similar relief may be sought from our 'dumb friends', the lower animals. This aspect is brought out in a session of one of our patients, at the time the mother of a girl of seven and a small baby boy.

She had begun the session by talking of difficulties with her husband, and also with her daughter. She then spoke of her baby and how she would miss him when he was older. The analyst drew attention to the remark; comments had been made in earlier sessions on the tendency of parents to begin to dislike their children as these became more independent and less exploitable. The patient took the point, recalling a couplet she had read somewhere and consciously deplored:

> *I love you! I love you! My pigeon, my own!*
> *And how I shall miss you when you are grown!*

But she said she would still like her baby when he grew older; she would, however, also like to have more babies. She often had fantasies of giving birth to a huge family, and had several dreams on this theme. It seemed necessary to keep up an indefinite supply, for she felt it was natural in a woman to wish to go on having babies until her first children

had babies of their own. She described what fun her baby was, and commented on his large round eyes, which she likened to those of the dog with eyes as large as saucers, in Hans Andersen's story *The Tinder Box*.

The analyst asked if she felt the baby protected her, and she accepted this interpretation. (The dog in the story, with two others, protected the soldier who commanded their services when he was in danger.) It became clear that she felt that the baby, not being able to talk, protected her from more trying relationships, especially those with her husband and daughter. It was easy and pleasant to have a relationship with her baby: all she had to do was to feed him—as the soldier in the story rewarded the dogs with a large feast. Her husband and daughter were liable to react to the food she supplied with explicit or implicit destructive criticism, as she had described earlier in the session. She felt guilty about the daughter's faddiness, which she ascribed to her own mistakes when the little girl was a baby. (This was a rationalization, typical of the mechanism of guilt, which enabled her, until it was analysed, to continue to distort her daughter's feeding behaviour, as we shall see later—p. 231.) The baby, however, could not talk back or criticize her preparation of food. She could make use of him as an excuse for not attending to her husband and daughter. (This in turn caused the daughter to express resentment towards the baby.) It is clear from all this (and was borne out by much other evidence) that the patient was terrified of verbal destructive criticism. Any comment on a person's behaviour is liable to be interpreted by him as destructive (p. 186), and the earliest comments of children when they begin to talk may be regarded as destructive criticism, and so provoke intense retaliation in kind.

The Suppression of Exploration

There are many ways in which parents can suppress exploration in their children. The most obvious is simply to snub and prohibit it, and to establish a large number of taboo subjects about which the children must not ask or speak. Any breach of these rules may be interpreted and punished as an expression of disrespect; and the home becomes a rigid dominance hierarchy, within which the child must equilibrate as best he can. A more subtle course is to set the child tasks which are impossible for him at a given age and stage of development, and thus lower his self-esteem by apparently proving his incapacity. The parent then steps

in and does things for the child (such as dressing him) which, at a given age, he could do for himself. This is the mechanism of preliminary investment (p. 161) for later exploitation; it is a key to fixation. The most damaging of these practices are associated with premature and hostile toilet training, which may lead the child to distrust his capacity to control even his own bodily activities without instructions from another person. Such behaviour on the parent's part may be rationalized to both parent and child as a benevolent care for the welfare of the latter, who is made to feel that he is incompetent and that he is exploiting his parent. This may be described as *comforter* behaviour, for it brings about the spurious dependency of one individual on another for the maintenance of his bodily comfort.

We may now consider a situation of parental hostility as it confronts the growing child, forced prematurely to explore situations of social stress that would tax anyone's intelligence. To meet them, he requires information about the feelings (inferred from the behaviour) of his parents, and information about his own wishes and his own feelings in response. In examining these impressions, the child is exploring something very distressing. The parent's co-operative behaviour is seen as his own only guarantee of gratification, protection and even survival. This parent is hostile, seeks to use him as an instrument, and is liable to threaten and even attack him, or to recoil in revulsion. His own mood in response is one of terror of someone of whom it is unthinkable to be afraid. Nor is his intelligence sufficiently mature for the situation to present itself in these logical terms. He can be aware only of an intolerably distressing state of mind, one of convulsive conflict. He is made to feel no confidence in his own capacity to solve the problem thus posed. Any attempt to do so is actively discouraged. Finally, a ready-made course of action is pressed upon him by the parent, one which will earn the latter's approval and thus remove at least overt threat or withdrawal and the immediate terror thus inspired. These are precisely the conditions for rationalization (p. 107) and fixation (p. 174). The child, therefore, will do exactly what is required of him, performing a stereotyped automatic reaction. But he will also rationalize, convincing himself that he has really solved a problem, and finding arguments in support of his action.

Once the rationalization is set up, the pattern of reaction is stamped in with instinctive rigidity, and the train of dissociation and disintegration must follow. Defensive activity sets in, and from now on every attempt will be made by defensive activity (p. 127) to preserve the rationalizations

intact, and prevent the individual from investigating the spurious sources of his rigid automatic behaviour: for if he did investigate, he would eventually come upon that terrible group of impressions which initially switched off his exploration. In later life, those impressions need not really be alarming or distressing, for they are now simply information about a remote past, which need not concern him except as historical material. But they are by now so dissociated from his personality that he is in no position to realize this: unconscious material, as Freud put it, is timeless. The whole behaviour of an adult, in so far as it is instinctive, implies the assumption that he is still a helpless child. In 1572, Charles IX of France was in a powerful position, and the recent support of the Huguenots rendered him free from the actual political control of his mother, Catherine de Medici. But she had only to press the buttons of a few releasing mechanisms (especially that of terror of herself, which she triggered by accusing him of cowardice), and he at once ordered the annihilation of his current friends and supporters in the Massacre of St Bartholomew's Eve (cf. de Levis Mirepoix, 1950; Champion, 1939). The limitations on our freedom of action are those due to our own incapacities and those due to the exigencies of the external situation. From adolescence onwards, the former are progressively less cogent, but through our entanglement of rationalization and dissociation we continue to act as if they were overwhelming.

In the child's first confused attempts to organize his experience, we should expect fallacious and indeed absurd rationalizations, for his logical apparatus is still imperfect (p. 219). As his logical powers mature, these earlier and more grotesque fantasies must be dissociated, to prevent their inspection and reclassification as fallacies, for this would initiate re-exploration of the stereotyped behaviour and its origin. Hence the more bizarre fantasies, of which Freud unearthed so many, become unconscious, and also dissociated from each other, for a developing logical apparatus would detect contradictions between them. But under certain conditions these truly fantastic fantasies may remain proconscious—for instance if they are buttressed by widespread authority, as may be true of cultural mythologies. The contortions of some philosophers may be seen as attempts to rationalize the inherently irrational.

Similarly we may trace the gradual development of the child's abstractive and integrative powers in the changing nature of fantasies developed at different stages. The world of the infant and the child who has just begun to talk is a chaotic and unpredictable one—because the

child himself still has no adequate capacity to organize and predict. Later he begins to observe regularities. The first phase is often dominated by a relatively exclusive relationship with his mother, while the second brings him into contact with his father as well. In fantasy, the behaviour of mother is now assumed to be chaotic and unpredictable, while that of father is supposed to be lawful and coherent. Hence arise myths of tigerish and terrifyingly unpredictable mother goddesses, kept uneasily in check by divine patriarchs of orderly habits, who can be appeased in well-defined ways—all because the child has begun to learn to equilibrate by the time he comes much in contact with his father. So are engendered widely entertained fantasies (*social stereotypes*) about the respective inherent natures of men and women. Men are supposed to be logical, methodical and controllable; women are described as intuitive (though there is really no difference between intuition and logical abstraction— p. 32), mysterious, inscrutable, capricious and unpredictably 'variable as the shade By the light quivering aspen made'. Once such stereotypes arise, attempts will be made to cause children of different sex to conform to them, by bringing them up in different ways.

At the time when rationalization really sets in, children are beginning to speak; for it is then that hostile behaviour by the parents is intensified (p. 223). The child is grappling with the new problem of expressing aspects of experience in symbols. Defects in the efficiency of this technique become manifest in a weird crop of fantasies organized in terms of those processes and phenomena with which the child is already most familiar and preoccupied—those concerned with his bodily activities. Hence the jungle of fantasies which Freud called 'oral' and 'anal', in which strange variations are played on the themes of feeding, defecation and care of the body surface. It is in some such grotesque terms that the child first envisages the working of his own *brain*; nor are such fantasies eradicated by later education, for by then they have been dissociated. We shall see something of this later.

When exploration is suppressed, the child represses both his own feelings and those of his parents. Strange arguments appear in favour of *not* observing the latter. We have already mentioned a boy patient with difficulties in spelling, associated with fear of observing and interpreting his parents' behaviour (p. 183). Constant indications turned up in his analysis that he felt it dangerous to observe his mother's actions attentively; reluctance to do so was rationalized by the comforting belief (found in other patients too) that if he did not observe something it had

no effect on him, and ultimately did not exist. This is the fantasy of Bishop Berkeley. It is a curiously precise reversal of the truth. For as we have seen (in this very case—p. 183), close attention to a parent's actions is the only way *not* to be influenced compulsively by them. Acceptance of the fantasy exposes the child helplessly to all the effects of distraction and condensation. The fantasy also led to fears on the boy's part that *he* did not exist unless attended to by someone (particularly his mother)—as in Alice's problem in *Through the Looking-Glass*: if the Red King was dreaming about her, would she exist when he woke up? The boy's reluctance to observe his mother was bolstered in another way too. She often behaved seductively, inducing him to look at her while she was partially undressed (though there was no question of overt proconscious seduction). He correctly interpreted this, not as a communicative process, but as an attempt to influence him instinctively. But he now argued that to observe her was to submit to her pressures, and *not* to observe her was an act of independence. He was thus confused between the problem of attentive observation (which *would* have been treated as a rebellion) and that of hypnotic receptiveness to instinctive pressures. This confusion was cleared up in due course. (Nicholson, personal communication.)

Another consequence of the boy's fear of observing his parents appeared as a preference for hearing about his parents from other people. He once dreamed that his father and the analyst were together with him in a room. The analyst (in the dream) told him that he 'got it all much easier than his father', for the latter had to work and earn money. Now in actual fact the father, in talking to the analyst, had several times used this phrase and made this complaint in a joking way. He must have conveyed to the boy the attitude it expressed, whether or not he ever used the phrase in the boy's presence. But the boy felt safer if, instead of observing it himself, he was told about it by the analyst, who could take the responsibility and protect him from repercussions; he expressed the detour in the dream. He was for a time in the habit of copying from the work of other boys at school, obviously another expression of the same fear of personal exploration. In this context he mentioned that he felt safer when learning dead languages. When using a living one, he was beset by the problem whether or not to recognize hostile expressions. He felt he must balance on a knife-edge of knowing and not knowing. He once summed up his whole attitude to awareness and attention in the condensed verbal slip: 'consciencely'. 'Thus conscience doth make cowards of us all', said Hamlet, who was balancing on a similar knife-edge and feigning insanity

in order not to appear to see the dangerous implications of his uncle's words and actions.

For the details of his rationalizing fantasies, the child does not have to look far. They will be assiduously provided, along with his stereotyped action patterns, by the parents themselves, through overt and covert hints and verbal expressions. The child permits himself to be *deceived*, using the deception as an excuse for refraining from exploration. These deceptions will include false information about his parents' feelings and motives, and false information about his own (p. 173)—especially the misinterpretation of his feelings in accordance with projection by the parents. The child is increasingly equipped, not only with patterns of behaviour which seem to corroborate the projections of his parents, but also with a whole set of spurious goals or wishes, derived from the same source. He becomes, like the victim in the passage of Gibbon (p. 156), a double slave. Thus the infection of children by parents is a transmission of both fantasies and automatic reactions.

Direct and Complementary Identification

When a mode of behaviour and its accompanying rationalizations are transmitted from a parent to a child, we speak of identification on the child's part. *Identification means being infected.* As examples will presently show, it is not hard for parents (proconsciously or unconsciously) to manoeuvre a child into a position where his course of action is completely circumscribed, and bears a definite relation to the defence system and mode of behaviour of the parent. The child's behaviour may then be set in this mould through rationalization, deception, distraction, condensation, incidental conditioning, reinforcement by repeated execution of the identificatory behaviour on the child's part (cf. p. 122), and probably other factors—for the problem is far from solved.

Any defence system, where it concerns the relationship between two people, admits of two roles. For instance, one person may be dominant, the other submissive. This is *not* the same dichotomy as that between exploiter and exploitee. It is one of the special features of human behaviour that submissive, no less than dominant, behaviour can be used for exploitive purposes, and not just, as in the monkey colony, as an alternative to equilibration. So far as exploitation is concerned, it is always the parent who is in the fundamentally exploitive role (though the behaviour

imposed on the child may include acts of exploitation of the imposing parent in a limited, e.g., financial, sense). But the parent may well adopt the submissive, and impose the dominant role.

Identification may therefore be *direct* or *complementary*. Complementary identification means assuming a role complementary to the automatic role which the parent has by now adopted. Direct identification means assuming the same role as the imposing parent. The two forms of infection are not incompatible. The child may be made to assume the complementary role *vis-à-vis* the infecting parent, and the directly identical role *vis-à-vis* other people, e.g., the other parent or a sibling (brother or sister). The child's later behaviour to other people may be on the direct or complementary model. He may, for instance, select a mate with complementary characteristics to one of his parents, or a mate like one of his parents. Since two parents are actively infecting him, his pattern of automatic instinctive behaviour, and of accompanying fantasies, may be a complex mosaic or resultant of those of the two parents themselves. When adult, he may identify directly with one parent *vis-à-vis* some people, and with the other *vis-à-vis* others. Or his identification may vary with the detailed nature of the relationship or activity or situation: thus he may directly identify with one parent in professional contexts, and with the other in private life. When a child is infected with one role, he will simultaneously be infected with a fantasy of acting the other role. In later life, he may try to switch into this role in his relationships. Such an ambition is sometimes referred to as an *ideal image*. Needless to say, an intelligent personality has no fixed, perfect ideal; for the essence of intelligence is infinite progress.

When the child has identified, in either role, the identification forms an integral part of his defence. He has now been equipped with an organized collection of spurious goals, which have nothing to do with his *own* personality, for they have been derived straight from his parents. We must distinguish carefully between a person's own real wishes, goals and personality, and those of his identification system. The latter were originally projected on to him by his parents, and later imposed on him as instructions of extraneous origin (cf. *Fig.* 24, p. 157). We may therefore speak of his own personality as distinct from his *pseudopersonality*, made up of the projections of his parents. Great confusion has arisen in the use of terms such as 'selfishness' and 'egotism'. If any significant meaning is to be attached to the 'ego' or 'I', it is that of the individual's own intelligent personality (as in Halstead's usage, 1947). Egotism in

this sense is precisely equivalent to the capacity for love, for the intelligent personality is naturally co-operative. It is absurd to speak of selfishness in a denigratory sense when a person is acting on his own real wishes and realizing his own goals—though this is just how hostile parents will speak, in order to discourage their children from developing co-operative personalities which would unfit them for the role of exploitees. What is really meant, in realistic common usage, by such words as 'egotistical' and 'egomaniacal', is best called *narcissism*. It is an exclusive concern on someone's part with their parental projections, and with acting on these. Such a person really is destructive and unco-operative, for (in extreme form) he now has no personality at all, except the pseudopersonality imposed by his parents. Such a person will ignore or misinterpret everything in his environment which does not fit in with his parentally derived fantasy world. (Extremely narcissistic people, in conversation, regularly perform simple displacement activities, like tapping their feet, while other people are talking with any independence at all.) The point is well made in Berthold Brecht's play 'The Caucasian Chalk Circle'. Here all the characters who are still human—that is, who still have personalities of their own—appear with their natural faces, while all the other characters appear wearing masks. (The Latin word for 'mask' is 'persona'.) A poet once wrote: 'And when Love awakes, then dies the "I", the eternal tyrant'. He was expressing a profound truth, but in a confused way. When love awakes, the projected personality may indeed die (cf. p. 175), but the real personality, the real 'I', comes to life. Intelligent pursuit of one's own real wishes (misleadingly qualified by the cold term 'enlightened self-interest') is inseparable from a sense of responsibility about others, and a co-operative attitude towards those of them who can possibly benefit from it. To love one's neighbour and to love oneself are equivalent. The projected pseudopersonality is the real tyrant, the fantasy self from which it is rational to wish to escape, but which can only be eliminated by fearless scrutiny of one's own and others' behaviour.

A Pinch of Salt

We may now look at some examples of infection and identification in process. Mention has been made (p. 224) of the patient whose daughter was given to faddy capriciousness about feeding. At the time of the incident now to be described, the girl was about seven. As a result of her

analysis, the mother was able to detect herself in the act of producing an identification in the child. Unconscious behaviour of the following kind must be common; the unusual feature of the incident is the mother's heightened power of attending to her own behaviour.

In one of her sessions, she reported that a few days earlier she had been seeing her daughter home from school, and had offered her a drink or an ice-cream. The daughter was captious and refused the offer. 'Oh dear', thought the patient, 'she's behaving like her father'. In fact her husband was in the habit of refusing food prepared by her, in a manner which she felt was destructively critical (p. 224).

Later in the session, the following incident was reported. The patient had been making scrambled eggs for her daughter. She noticed that she had put in too much salt, but did not feel like taking the trouble to scoop it out with a spoon, and hoped it would be all right. When the cooking was complete, she tasted a piece and it seemed satisfactory. She gave the scrambled egg to her daughter, and went to attend to her baby son (cf. p. 224). The daughter complained that the egg was too salty and her mother shouted furiously at her. The daughter simply refused the egg. Her mother later ate the egg herself and found it most unpalatable.

On another occasion, when the daughter was refusing food, the patient's husband intervened, and said: 'What would you say if I refused it too?' 'That's just the trouble', replied the patient, quite good-humouredly, 'you set a bad example'. The whole episode needs little comment; it admirably illustrates the manner in which a child may be made to identify with one parent, by the manoeuvres of the other.

Positive and Negative

This is not quite the end of the story of the scrambled egg. The following day, the patient apologized profusely to her daughter. This has another, more general aspect.

The patient's own parents (especially her mother) had continually made her feel in the wrong, whatever happened: any little disaster was bound to be her fault. This was designed to support her mother's defensive belief that in any situation *she* (the patient's mother) was in the right; she was prone to behave in an aggrieved and self-righteous manner. As a result of this treatment, the patient herself was destructively self-critical, and always felt herself to blame for mishaps. In dealing with her

daughter, she repeatedly managed to engineer situations in which she herself could be faulted, in the sense that some mishap or friction was the direct result of her own behaviour. She would then apologize abjectly to the child for having unjustifiably lost her temper. There is, of course, no harm in admitting to a child when one has made a mistake; the patient's mother had harmed her precisely by never making such an admission. But the contrary procedure, if executed in an atmosphere of moralism, can be damaging in a different way. In dealing with her daughter, the patient was exercising considerable unconscious skill in contriving situations which would lead to an apology on her own part, as the egg episode sufficiently shows. Many other episodes took a similar course. In this way (had not the mother been trained in the analysis to observe herself), the daughter was being groomed for a role of permanent aggrievement and self-righteousness; she was being led to believe that in any possible debacle it was always 'the other person's fault'. She was thus being moulded into a perfect likeness of *her mother's mother*. In later life she in turn might well have turned her child into a likeness of her own mother, and this alternation could continue indefinitely, each generation acting as a sort of photographic negative from which the next is to be printed, with direct and complementary roles simply exchanged at each stage of the process.

The Dog and the Canary

We may now consider examples of direct identification. To show how easy it is to produce in another individual behaviour identical with one's own, we shall take an instance in which this was done, not only to a child but to a domestic animal. In the case of the child such direct moulding of behaviour is accompanied by a transmission of rationalizing fantasies, which help to make it permanent. In the animal, it can become so by simple conditioning.

The following illustration begins with irrational anxiety on the part of a father about obtaining enough food for himself. In the two generations of the family with which we are concerned, there was no question of serious poverty or want. Economic hardship and distress can be productive of every kind of pathological behaviour, and solution of the problem of supplying everyone with adequate standards of living and comfort is a necessary condition for human progress. But this does not mean we can ignore the sort of factors discussed in this chapter. These

factors are only *masked* by the presence of real hardship. All the instinctive mechanisms and fantasies described in this book can be found in the off-spring of well-to-do families. The removal of poverty in any particular case has never resulted *ipso facto* in the sudden appearance of fully intelligent behaviour. Nobody expects rationality from a starving man. But we must not fall into the fallacy of expecting it from a well-fed one, unless he is prepared to exert his exploratory drive for all he is worth.

We can now consider conditions in the family of one of our patients during his childhood (Russell and Russell, 1958). Much was heard during his analysis of a pet dog he had had as a child. Time and again he was able to recall various treatments meted out to the dog, and in every instance it later transpired that his own treatment by his parents had been similar or related. It was thus possible for him, as well as for the analyst, to obtain information about his relationship with his parents *via* less distressing recollections of the experiences of the dog. Domestic animals are often informative in this way. Being in much the position of children (and more exactly in that of infants), they tend to be treated in a similar way. Often their treatment is a more explicit expression of parental fantasies than that of the child himself (Russell, 1956; Russell and Russell, 1958).

The patient's father was much concerned to ensure that the dog ate up the whole of each meal he was given, and left a clean plate. Dogs do not necessarily like to finish a meal; they may prefer to leave some for later. But this dog regularly cleaned his plate. He was trained to do this in the following way. The patient's father would take the dish with the dog's meal, and pretend to offer it to another (imaginary) dog. The (real) animal became frantic with anxiety, and, when it finally got the food, finished it to the last scrap lest it should be lost to its imaginary rival (cf. p. 466). The treatment had the secondary result of making the dog adopt a violently competitive attitude. It became agitated whenever another pet, a canary, was fed.

It later transpired that the patient himself had been tricked into cleaning his own plate by an identical threat—namely that the food would be given to someone else. But in his case the trick was reinforced by a further deception. At the bottom of his dish was a picture of a pig with a trough of food, and his parents used to tell him that unless he cleaned the plate this pig would not be able to eat.

The reason for the father's behaviour towards both boy and dog became clear when the patient recalled the following incident, which

apparently happened more than once. Before putting the dog's dish down for it, the father ate some of the food himself, remarking, 'This is good. I'd like to eat this myself'. It is thus obvious who was represented by the imaginary other dog or other child. The starting-point was plainly the father's own great anxiety whether he himself would get enough food, no doubt induced by similar behaviour on the part of *his* parents. With this anxiety went a competitive possessiveness and wish to deprive others, on an unconscious assumption that there is not much food in the world, and never enough for two. He expressed all this, with both boy and dog, by threatening to keep the food for himself or to give it to an imaginary rival. As a result, he made them both as anxious as he was, and caused them to clean their plates. The dog further expressed this by competitive behaviour about food offered to the canary, thus reproducing exactly (by simple automatic conditioning processes) the father's own behaviour.

The influence on the boy included, in addition, transmission of a fantasy. The father must have rationalized his own behaviour in some such terms as that he was teaching his son to eat adequately; he must have felt that his own greediness was a necessary condition for the satisfaction of others. All this was transmitted by means of the fantasy about the pig. He projected on to his son his own impulse to prevent others from feeding, by accusing him of thwarting the pig in the picture at the bottom of the dish. The boy had to eat greedily in order not to thwart the pig. By transmission of both behaviour and rationalization, the boy was thus made into a perfect replica of his father, so far as this aspect of his behaviour was concerned. In fact he showed all the signs of direct identification. With precise parallelism to the reaction of the dog, he actually killed a small bird which was attracted to some crumbs his parents had put out. He was redirecting resentment from his parents to the bird, as if it were the bird, and not in fact his parents, who threatened to deprive him. This redirection would be sanctioned by his parents, and would facilitate the direct identification. But, in addition, the boy acted out with the dog the whole of his father's game, making it clean its plate by threatening to give the food to an imaginary rival.

This patient's parents were liable to show scant regard for his own property as a child and adolescent. His father seems actually to have stolen money from him, if only temporarily. His mother 'borrowed' his carpentry tools and spoiled them by misuse. He was led to regard the slightest interest in his possessions as a threat to deprive him of them. Extreme possessiveness is closely related to stealing. Both depend on an

assumption that one's own property is never safe and never really one's own. One is then liable to adopt a similar attitude to other people's, on the argument that they cannot have any property either.

Give a Thing and Take a Thing . . .

Some of these themes emerge more clearly in the case of another patient, whose mother was constantly offering her gifts, and then changing her mind and withholding them. She would, for instance (when the patient was adult) offer a certain sum of money, and then give a smaller sum; or she would offer one present, and then give another, less welcome; or she would encourage the patient to buy something she could not really afford, by promising to pay for it, and then provide some quite different gift and refuse to pay for the original one. She kept a careful scrutiny of the manner in which the patient spent any money given to her, and what she did with any other kind of present. Throughout the patient's childhood, she had implied to her that any property permitted her was merely on loan, and that all property fundamentally belonged to herself (the mother). As a result the patient used often to refuse gifts. A friendly adult once offered her a beautiful doll. Her mother told the friend, without consulting her, that she (the patient) would not want this doll. The patient thought of objecting; she then reflected that the doll might get broken, and she would then be severely criticized. In other words, if the doll were accepted, it would become her mother's property, and she herself would have to render a strict account of its state of repair. The fantasy that the doll would be broken is an expression of resentment. For if all her property were her mother's, and could be withdrawn at any time, she could only express her control of it in a destructive way, for which she would be punished.

When adult, the patient had married a man with a profound dislike of giving presents, though he tried to overcome his distaste for this. The patient more than once stubbornly refused presents he had bought for her. Their daughter (aged about seven) behaved in an erratic way about property. She once bought her mother, as a birthday present, a block of notepaper. When presenting it, she insisted on being allowed to use it herself. The patient felt this was intolerable, and refused the gift altogether, and later that day her husband's gift also, though it was one she particularly liked. The child was clearly being infected, and jockeyed

into the position of her grandmother; in fact she took away the notepaper and used it all herself. At one time she had a short bout of stealing objects of little value from other children at school. She also engaged in confused transactions with other children. Thus a little friend of hers had asked for a book. She resisted the request for a time, but later agreed to hand over the book and another valuable article in return for some worthless objects, such as cheap unstrung beads. Later still she regretted the exchange, shouted that she wanted her book back, and finally insisted upon a complete re-exchange.

The patient reported all this in a session. It soon appeared that she deeply resented the child's disposal of any book which she (the child) had been given, but which the patient really hoped would be kept in the family for later use by possible younger children or grandchildren. This resentment was specially strong in connexion with books which the patient herself had been given as a girl by *her* mother. She rationalized this to herself and her child by saying that such books were of sentimental value. But she also displayed resentment when the child gave away a gift she (the patient) had bought for her, but which she (the patient) hoped would come in later for younger children when her daughter had tired of it. The patient had, in short, taken over the view that all property really belonged to *her* mother, and could only be held by others in trust.

On one occasion the daughter was told that her Granny (the patient's mother) was not coming to spend Easter with the family, but the following week-end instead. She expressed pleasure with both items of news. Why, then, if she was pleased Granny was coming later, was she not eager for Granny to come for Easter? 'Because', said the child, 'Granny won't let me finish my Easter Egg'. Apparently Granny often prevented her granddaughter from eating up all her sweets. When the daughter complained of this to the patient, the latter would not intervene. She said it was awkward to take the matter up in the case of sweets which Granny herself had provided. Thus she fully accepted her mother's assumption that giving property only means lending it, and passed the assumption on to her daughter. The same games are played in wealthier families with vast trust funds, instead of sweets, or books of sentimental value.

The granddaughter now evidently felt that none of her property was really her own, for any of it might be recalled at any moment for the use of some other member of the family. It was never explicitly stated that apparent gifts were really on covert loan, so the assumption must

have been transmitted in an incidental, dissociated way. As a result, it would be expressed unconsciously in her own behaviour. She would give or swap away her possessions, as the only means of expressing her own control over them. Later, identifying, she would insist on having them back, to show that no other child could have permanent property either. The stealing bouts expressed a confused assumption that property can only be obtained without the owner's consent, and that the owner has no permanent right to it anyway.

Analysis enabled the patient to see the implications of her own behaviour. In future, she decided to make it explicitly clear to her daughter that while some possessions were loaned to her to enjoy their use but might have to be transferred to others later, other possessions, including any new ones bought for her, could be regarded as exclusively her own, to do exactly what she liked with. The patient also advised her daughter not to swap things with other children without first consulting her (the patient); they could then find out whether the daughter really wanted to make the swap or gift, in which case she could always do so. The child was thus restrained from compulsively acting out a fantasy, and encouraged to examine her own motives and feelings instead. This was entirely rational, but such a procedure should be temporary and provisional, for it could develop into a compulsive consultation by the child of her mother to find out about her own feelings. This is, of course, the problem of psychoanalysis itself, which should tend to increasingly independent awareness and observation on the patient's own part (p. 177). But then psychoanalysis is a direct expression of a co-operative and communicative way of life, which is not confined to the consulting-room.

The Mirror and the Mask

We can now sum up the process of identification in a general way. The child is compelled by parental manoeuvres to act in a particular, highly circumscribed way. Identification takes place when the child has adopted the fantasies and rationalizations that will stabilize this behaviour, and cause him to express it in his turn in later life. He is then equipped with a pseudopersonality that was first projected on to him, and then actually imposed by his parents. Having identified, he has a double set of emotions of every kind—his own real ones, and those of the projected personality. Thus real fear is quite different from an emotion of fear originally projected

and later assumed, by identification with parents: the latter emotion we may call *panic*. Similarly real rage is quite different from identification rage, which we may call *fury*. Identification begins when the child first actively participates in the fantasy world of his parent, no longer under direct compulsion, but as an expression of a pseudopersonality that has become, as one might say, *second nature* to him.

Obviously this process is not all-pervading; most parents can see something of their children's real growing personalities, and much of parental behaviour is co-operative; we see around us every day evidences of real human feeling and human intelligence. But in so far as identification occurs, it is the mechanism of a vicious cycle, that spirals towards an end where human beings become inhuman automata. The course of this spiral can be expressed in a vivid picture. Far be it from us to add one more fantasy to those masquerading as explanations, and what follows is merely a graphic image of processes which, as yet, we understand all too little. It is, like most of this book, a description, and the explanation will only be won by the vigilant research of every exploring individual.

The parent looks at his child's face, but he does not see it. He sees, instead, a mirror (p. 215). In the mirror, he sees not even his own face, but the mask he has worn too long (p. 231). As the child grows, the parent sees him always with this mask, and it is thus that he makes the child see himself. The child grows up wearing the mask, and at length his features take on its contours: the mask is now all that is left of his face. He mates with some other masquer, and begets a child in his turn. He looks at this child's face, but sees only, as in a mirror, the mask his parents saw on him. Well might the Romans, on days of family celebration, carry in procession the death masks of a line of dead ancestors. It is such a procession that carries all our instinctive patterns through the generations.

The Transmission of Fantasies and Action Patterns

It is, however, a simplification to think of fantasies and instinctive patterns as being transmitted down a single line; though plenty of instances can be found of such grandmother-mother-daughter sequences as we have examined. Inheritance, genetic or behavioural, is a web, and not a series of isolated lines. The identifications of each individual are determined by both parents (to say nothing of other relatives, nurses, governesses, etc., with whom he may come into close contact). In passing them

on to his children, he will in turn be acting in combination with a wife. Her fantasies must bear some relation to his, in so far as his choice of her as a mate was instinctive; but they may not match perfectly, and the combined influence on their child may contain new elements. The actual course of behavioural inheritance is complex and web-like in nature.

Some fantasies may be diluted in their passage through the generations. They begin as proconscious fantasies, fully acted out, and end in wholly unconscious fantasies which influence behaviour in more subtle ways. The paternal grandmother of one patient threw herself off the roof of a building. His father several times threatened to leap out of a window. He himself only had fantasies of this kind of suicide (which analysis enabled him to scrutinize and associate with other material); but he expressed the symptom as a child in a tendency to sleep-walking and a terror of what he would do in this condition, which led him to take stringent precautions. Conversely, a fantasy may become concentrated, if in some generation it is strongly reinforced by that of a parent not in the line we are abstracting.

Sometimes it is important for the parent's defence system that the child should act out something he himself was unable to do as a child. One patient took her child to the doctor to be examined on account of mild pains in the chest of which the child had complained. She did not explain the object of their journey until half-way to the doctor's house, when the child gave her the slip and ran home. She returned herself and finally took the child to see the doctor, but the child would not submit to an examination and was not compelled to. This patient had had a terrifying experience as a child when her tonsils were removed. Her parents had not explained about anaesthesia, and when she reached the theatre she was terrified and struggled desperately when the doctor held her down and administered gas, for she had no idea what was going to happen to her. It was this incident that she re-enacted in a mild form, permitting her child to act out the escape that had been blocked in her own case.

The hostile parents' attitude to a child's own *abilities* must be balanced on a knife-edge. In so far as the child is exploitable, they will encourage him to act out fantasies which they themselves were unable to perform; for this purpose great ability may be required of him. But any substantial success on his part may cause them to see him as a separate and independent person, and will evoke competitive envy. The balance between competitive and exploitive attitudes on the parents' part may result in

drastic oscillations and ambiguities in the child's behaviour in later life. In so far as parents are hostile, their problem is that of the slave-owner meditating how far to educate his slaves.

The Transmission of Conflict: Superego and Id

We have already mentioned how conflicts in a defence system may be resolved (p. 126). An identification need not be one simple dissociated mass of fantasies. It may be sharply divided into two. On the one hand, there may be impulses to act out all sorts of bizarre and ultimately pseudosexual fantasies (Chapter 6), of a nature difficult to rationalize because so obviously compulsive and odd. On the other, there may be restraints superimposed on these fantasies—much as in the case of the pigeon mentioned on p. 70. These restraints will themselves be to some extent dissociated, for they only acquire meaning in relation to the activities they suppress. The former of these separate masses of fantasy corresponds to what Freud called the *id*, the latter to what he called the *superego*. (Freud did not realize that the id, no less than the superego, was a legacy from the parents.) Conflicts between these two wholesale mechanisms take much the form of conflicts between drives in lower animals, and the resultant will influence behaviour. The parent can readily resolve such conflicts. He can engineer the child into acting out the id component for him (by implicit instructions—p. 216), and then descend upon him with a fury and revulsion which expresses not only his superego but also some of the components of his own id. For instance, he can implicitly encourage the child to be cruel to a pet animal, and then attack the child savagely for this behaviour. One of the simplest methods of implicit engineering is to be lavish of prohibitions which have the effect of 'putting ideas into the child's head' which would never have occurred to him: any prohibition of this kind contains an implicit, incidental suggestion which may have hypnotic force in suitable conditions (cf. the story of Jedda, p. 190). Once the child has acted out, he is punished—*apparently* quite consistently.

We must carefully distinguish this sort of parental behaviour from the sort of firm restraint which we have indicated as rational (p. 238). In both cases, *apparently*, the child is discouraged from acting out a compulsive fantasy. But if this discouragement is done in a firm and rational way, it will be done without a trace of blame, and will lead to a freely communicative discussion in which parent and child try co-operatively to

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understand how the compulsion arose. If this process is successful the child will genuinely eliminate the fantasy, will no longer feel impelled to such actions, and will thus behave more freely. But if the parent punishes the child in a superego, moralistic manner, savagely and destructively criticizing him and banning any communicative discussion of the matter, then both the original compulsion and the superimposed restraint will be dissociated, and for the rest of his life the child in his turn will be saddled with the same instinctive conflict.

If the child acts out, he provides the parent with a rationalization or moralization for attacking him: the parent's own behaviour *can then be proconscious.* The child may become conditioned to provide such excuses for *relatively* mild overt attack in preference to offering no handle for the parent's fury, which may then be expressed unconsciously in savage outbursts or intolerable atmospheres. By doing something 'wrong', and submitting to punishment, the child temporarily disarms this lurking fury, and obtains a respite by raising the parent's false self-esteem. In a superficial way, it seems as if the atmosphere has been cleared. The child now feels, falsely, that the situation is under his control. If only he abstains from the forbidden act, he assumes his parents will be friendly: this is a rationalization eagerly supplied by the parent (p. 213). The child's apparently rebellious act is really a submissive one, rationalized by repressing the hostility of the parent, which is really inevitable and in no way related to his own behaviour. Later the child may develop the logical next step of punishing himself in the hope of disarming hostility —all because he represses the parent's hate and his own fear.

This mode of transmission of conflict is the commonest. Half the conflict is now unconscious in the child; the other half may become proconscious by moralization—hence the child may repeat the whole process when he grows up with children of his own. But there may also occur a process whereby the superego-id relation is reversed. This is seen in what are called psychopaths (Cleckley, 1950). These are always the children of intensely respectable and law-abiding citizens. To the profound surprise of these staid parents, they behave in an endlessly and aimlessly delinquent way, usually as confidence tricksters. In the parents the id is wholly repressed, and their children act it out *en masse.* But in the parents the repressed returns: they endlessly cover up for their children, pay their debts, get them off prison sentences and keep their delinquencies dark. They rationalize this by eternally expecting reform and a change of heart. In the psychopaths themselves, the superego is totally repressed.

But here too the repressed returns. Psychopaths never indefinitely continue the careers of sponging and trickery which they can carry on for long periods with skill and ease; periodically, with monotonous repetition, they end up in prison. They are often of great ability and capable of holding responsible posts, too, for long periods; but sooner or later they throw up any success they have attained, often disappearing from the neighbourhood, to reappear as tramps or petty criminals elsewhere, and always to end again in mental homes or prisons. It is as though the parents can maintain their respectability only at the expense of their children.

One form of complementary identification, in general, is the complete automatic reversal in the child of all the parent's attitudes and reactions. This contra-identification is, of course, just as rigid and compulsive as the direct form. It is sometimes fashionable to regard rebelliousness as progressive and intelligent, so it is worth stressing that rebelliousness of this kind is *precisely* as automatic and restrictive of intelligent action as compulsive overt conformity. It is, for instance, just as compulsive to have to choose a mate who differs in some specific way from one of one's parents, as to have to choose one who corresponds. The psychopath's behaviour is just as compulsive as that of his respectable parents, and vice versa. At the end of *Iolanthe* the problem arises of the law that every fairy must die who marries a mortal (for the fairies now all seek to do so) —a problem instantly solved by the Lord Chancellor by the insertion of one word, so that the law reads 'every fairy shall die who *doesn't* marry a mortal'. As the Lord Chancellor says, the thing is really quite simple. We may also recall, as a supreme expression of this sort of thing, the inaugural speech (or song) of Groucho Marx as principal of the university in the film *Horse Feathers*:

> . . . *Whatever it is, I'm against it;*
> *And even if you've changed it or condensed it,*
> *I'm against it.*

The Ungolden Rule

Everyone knows of the Golden Rule—'Do as you would be done by'. It is as misguided as any other fixed rule, depending as it does on a wholesale projection of all one's own wishes on to another person. There is, however, a more sinister version of the rule, which governs much of the transmission process we are examining. It runs: 'Do as you were

done by'. For illustrating this mechanism, domestic pets are again useful. Their position relative to the child has much in common with his own relative to his parents. In one family we have studied, there was a linear peck-order (p. 137) determining relative status, which ran, in descending order: mother, elder son, younger son, dog (Russell and Russell, 1958, where most of the following examples are detailed).

One patient and her husband both had fantasy involvements with the subject of locked doors, and particularly with being locked out. The husband, in particular, was unduly concerned to keep their small daughter out of their bedroom, rationalizing this by the usual projection of prurient curiosity on to the child. This family owned a kitten. One night, the daughter complained of nightmares and asked to be taken into her parents' room and into her mother's bed. The mother kept her there for a while, but became anxious (for several reasons) when the child moved about, and finally threatened, unless she 'behaved', to lock her out of the bed-room in the morning, when the child was accustomed to come in and visit them. Soon afterwards, the father carried the child back to her own room, and the mother went in to say good night and ask how she felt. The child was uncomplaining, but asked her parents to close the door of *her* room to keep the kitten out.

Copious further examples are provided by the case of the patient whose father played the trick of the imaginary rival (p. 234 ff.) This patient teased his dog in exactly the manner they were both teased over feeding, an exact transfer from the treatment meted out to himself. Sometimes the transfer was more symbolic. He used to take his dog to a nearby stream, and make it jump across. He would then move down-stream, making the dog take wider and wider jumps until finally the problem was insoluble and the dog fell in midstream. His parents had naturally not meted out to him this particular treatment. But they had lowered his self-esteem by constantly increasing demands, until he could no longer cope, when he was made to feel incompetent. This is just how to suppress exploration in children (p. 224), whose feelings in this situation are well conveyed in the myth of Sisyphus, condemned eternally to roll up a hill a stone which eternally falls back just before he gets there.

This patient's parents often threatened to beat him. They never did so themselves, but delegated the task to his headmaster. He himself repeatedly beat the dog. He also sometimes forced it to eat, and once made it sick by this means; he was himself constantly pestered at meals, when the trick already described was not in use. Finally, he used to beat the dog until

it urinated, and then beat it again for this misdemeanour; he had certainly been given a rigorous toilet training.

The parents plainly liked others to act out their fantasies for them (e.g., the headmaster). In assuming the role of their agent, the patient might be influenced by many factors. First, he could thus redirect any resentment he felt at the way he himself was treated. Second, his behaviour was a means of repressing his own experience, for he could unconsciously represent to himself that it was not he who suffered such things, but rather the dog. It was only after recalling his treatment of the dog that he was able, in analysis, to recall corresponding experiences of his own. Third, he might feel he was providing a sacrifice, or substitute victim for himself. The stories of Iphigenia or Isaac are a synopsis of the actual history of sacrifice as a cultural ritual; it has always proceeded from the killing of humans to that of animals. (The fossil trace of this once flourishing practice may be detected in the terminology of the laboratory, where the physiologist is still said to 'sacrifice' his test animals when he kills them after an experiment.) Fourth, he was appeasing his parents by acting in this way. This appeasement might have taken the form of submitting to punishment for his actions (p. 242), but in this instance there was a different twist to the story. He was once teasing his dog over feeding in the usual way, when it bit him. His parents covered up for him, reporting to visitors and neighbours that it had bitten him when he was feeding it. Thus his appeasement took the form of implicitly admitting that there was nothing to criticize in their behaviour, by repeating it himself; they in turn backed him up, and the animal became the family scape-dog. They could thus express their id fantasies indirectly through him, and then rationalize on his behalf. He was also providing evidence in favour of their projections on to him. Later in life, he was to pursue the irrationality to its logical conclusion. As an adult, he was living in the same house as a married couple with one small boy. Someone told him this couple were going to acquire a pet. He said this was a scandal, and that they should be prevented from handing over an animal to the mercies of a small boy, 'for', said he, 'all children are cruel to animals'.

It is proper to add that this patient was himself shocked at the cruelties he was impelled to act out. It was this sense of the compulsiveness of his actions that saved him from outright submission—from becoming a sadist. As an adult, he is a responsible person, who takes every care not to injure other people, and he sought analysis largely to rid himself of fantasies which he regarded as painful and alien.

The Categories of Transference

We have tended to assume so far that what is projected on others is that which has been previously projected on to oneself—that each individual sees his own *mask* in the mirror. This is not always so. The child can rationalize his acquiescence in the behaviour of his parents, and repress his own fear and rage in response, by projecting on to them *his own* constructive and co-operative feelings. He, as well as they, can pretend that their behaviour is rational and co-operative when in fact it is not. (Compare the discussion of types of rationalization, p. 108.)

In any situation later in life where the individual comes into relation with one other person, his behaviour and rationalizations may take four different irrational forms. In speaking of such relationships, we use the word *transference*, for the individual is transferring to the new relationship some aspect, real or fantasied, of his original relationship with a parent. Transference in a relationship is the counterpart of identification in the individual's own behaviour. In such irrational relationships the roles may be distributed in various ways. The personality projected by the individual on to the other person may be (alternatively):

1   The real personality of the individual.
2   The mask which his parents had projected on to him.
3   The actual personality of his parent, as he experienced it.
4   The rational personality he projected on to that parent.

There are thus many permutations of possible irrational behaviour in a relationship between two people. Projections of types (1) and (4) will cause the projecting individual to permit himself to be exploited, if the person on whom they are made is in fact exploitively inclined. Projections of types (2) and (3)—that is, of complementary and direct identifications—will cause the projecting individual to mistrust a person who may be in fact largely co-operative. In the former case, the projecting individual is expressing an *idealistic* attitude, in the latter case a *cynical* one. We shall fully discuss these terms in Chapter 7. Generally speaking, the individual can assume either less or more hostility than is actually present in the other person.

Type (2) is the transference we have mainly been considering. In the case of the patient and his dog, the animal was made to play the role imposed on the patient himself by his parents, while the patient played the parental role. It was a transformation on the following lines:

Parent		Child
↓	⟶	↓
Child		Dog
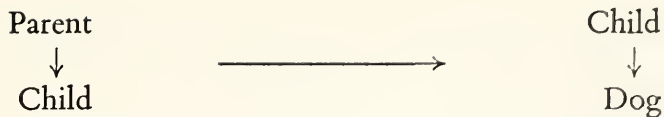
But the dog did not stand for the child's own personality, but for the child as seen by his parents. This transference is a specially effective means for transmission from parent to child to grandchild and so on, each generation projecting on to the next what was projected on to it by the previous one. It is also this transference which the analyst is most likely to incur. For the analyst is exploring the patient's own behaviour and relationships, just as he, when a child, began to explore those of his parents. So the analyst is likely to be favoured with just those projections which the patient's parents made on to him at that juncture. In general, scientists and artists, characteristically explorers, are also liable to incur this transference. We may conveniently call it a *child-transference*.

One way of looking at transference in general is to regard the individual as equipped with a set of (obviously acquired) releasing mechanisms for the various stereotyped behaviours he has by now had imposed upon him. Domestic animals, for instance, may be regarded as supernormal releasing stimuli (p. 71) for the releasing mechanism of child-transference.

The Remedy

What is the remedy for this lamentable chain of automatism? It is no use putting parents in the dock: any attempt at blame will lose itself in the mists of antiquity (p. 188). In this connexion we may recall the theme of *Ruddigore*, in which the hero is compelled by a whole animated picture-gallery of ancestors to commit one crime every day, as each of them had been compelled to do in turn. This lively representation of behavioural inheritance—in which the criminal *id* is transmitted—proved too much for its Victorian audiences. Of all the Gilbert and Sullivan operas (except the last few, which are plainly inferior in quality), *Ruddigore* alone encountered endless difficulties and was taken off after a short run (ostensibly on account of protests about a particular song).*

* The song concerned a British sloop which encountered a more heavily-armed French ship, and 'had pity on' the 'poor Parley-voo' by making full sail in the opposite direction. Protests came from both the British and French Admiralties of the period, the former being unable to take a joke and the latter even to see it.

The remedy does not, therefore, lie in a superego approach by society. Rather it lies in the hand of every parent of good will. Most of the main principles that may guide him or her have been illustrated in this or earlier chapters. It is little more than general principles that can be offered at present. The parent must be clear about the differences between constructive and destructive criticism, and between firmness and moralism. It is no kindness to children to encourage them to act out every fantasy with which they have been burdened—a course of action too easily rationalized by modern popular psychologies of permissive child-rearing. The appearance of any piece of stereotyped, compulsive behaviour in the child should be a warning signal for the parent that something is wrong with the family relationships. The child must be restrained from following his compulsion. But he must not be blamed for past actions, and the restraint should be the immediate precursor to a full and freely communicative discussion, in which the behaviour of the parent can be scrutinized as freely as that of the child. The child should then be encouraged, as far as he is able, to pursue such investigations on his own account. Before the child can speak, the onus of self-exploration lies on the parent. Above all, the parent should watch for any trace of rationalization and deception on his or her part—still more for moralization. A useful rule is to watch oneself particularly carefully if one has used the word 'ought' to a child (p. 185). We cannot conveniently dispense with words like 'ought', 'should' and 'must'; this paragraph is full of them. They are useful expressions for concisely describing rational principles. But they are charged with moralistic meanings for us all, and we can turn this to useful account by using them as alerting signals. Nothing in the relationship (or in any other context) should be taboo as a subject for discussion with the child. In due course, parent and child can cooperate in the adventure of exploration. In general, exploration and communication are the keys to improvement in family relationships, and hence to the liberation of both parents and children. No handbook of rules will ever solve the problem. For the study of human behaviour cannot, by its nature, be a specialist study, if it is to serve for the liberation of the human mind. If it is the study, and the adventure, of all of us, then the grim commentaries of this book will soon be out of date, and matter for the historians of the first fully human generation of man.

Threefold and Fourfold Relationships

They told me you had been to her,
And mentioned me to him:
She gave me a good character
But said I could not swim.

He sent them word I had not gone,
(We know it to be true):
If she should push the matter on,
What would become of you?

I gave her one, they gave him two,
You gave us three or more;
They all returned from him to you,
Though they were mine before.

If I or she should chance to be
Involved in this affair,
He trusts to you to set them free
Exactly as we were.

My notion was that you had been,
(Before she had this fit)
An obstacle that came between
Him, and ourselves, and it.

Don't let him know she liked them best,
For this must ever be
A secret kept from all the rest,
Between yourself and me.

'That's the most important piece of evidence we've heard yet,' said the King, rubbing his hands; 'so now let the jury—'
   'If any of them can explain it,' said Alice, . . . 'I'll give him sixpence. . . .'
                                                                    Lewis Carroll

The Plot Thickens

Somewhere in the middle of physics, and of science in general, there lies a great gap. The work of Newton in analysing the relative motions of, for instance, planets, was soon to come up against a serious difficulty. It was found that while the interactions of two such bodies could be studied easily, given certain information about the properties of each, those between *three* independently acting bodies began to present

formidable obstacles, those of four bodies even more difficulty, and those of more than four a well-nigh insuperable problem. When the Newtonian system was faced (for instance) with the task of explaining the behaviour of the vast numbers of molecular particles in a moderate volume of gas, it proved unworkable. In the face of such problems a new method was introduced into science—the statistical method. It was now possible to handle a system composed of even astronomical numbers of parts—but only on condition that all these parts behaved with great uniformity, so that it did not matter which of them, at any given moment, was in which position. The behaviour of the whole system could now be studied, but only at the expense of ignoring minor differences between the individual component parts. Thus arises a curious situation. It is possible, for instance, to predict accurately the behaviour of two interacting animals, and it is possible to predict the behaviour of a large population of animals; in between lies a gap which science has not yet been able to fill. The statistical method has given rise to powerful techniques for the study of large crowds and masses of human individuals —but only in so far as the behaviour of these individuals can be assumed to be both automatic and *uniform*. This ant-hill sociology will never solve the more complex problems of human social interplay, which require the abstraction of key processes in relationships of every degree of scale and intricacy between potentially freely acting individuals.

The gap is seen not only in science but in all the arts. To handle very large numbers of units in a unified manner has not been beyond the power of great artists. One thinks of the great historians, of the work of Lucretius, or of the massed crowds of Breughel. To concentrate, with intensity and truth, on at least some of the relations possible between two people, has not entirely defeated painter or poet. But no artist, novelist, dramatist or poet has ever succeeded in giving perfectly balanced prominence to all three parties to a three-fold relationship, or abstracting key features from the interplay of more than two independent units of any kind.

Such conceptions cannot be beyond the reach of our brains. How, then, does this specific blindness arise? Because (we may surmise), at a time when our still embryonic intelligence is not equipped for such problems, we are forced, as children, to explore the formidably tangled relationships within the human family. We cannot solve the problem as children, and the resulting rationalizations and dissociations are with us for life.

It needs little thought to see how complex are the possible permutations

of relationship within the family, especially when we bear in mind the web of competitive and exploitive relations we considered in Chapter 3, and the welter of displacement and redirection we considered in Chapter 4. In a family of three, if we take each single individual as the subject, there are already nine relationships★:

Father	with	Mother
Father	with	Child
Mother	with	Father
Mother	with	Child
Child	with	Father
Child	with	Mother
Father	with	Mother+Child
Mother	with	Father+Child
Child	with	Father+Mother

In this book we cannot attempt to thread this labyrinth, whose mazes multiply with each sibling added to the family, and merge eventually with the greater labyrinth of relationships outside. The threesome relationship is certainly fundamental, and when more siblings arrive the new gambits are redeployments of this original interplay. All we can do in this chapter is to sketch a very few of the possible competitive and exploitive interactions. We are putting forward, not a set of even provisional conclusions, but a vast programme of research.

The Use of Children vis-à-vis Strangers

One way in which parents can exploit their children is in their dealings with people outside the family. One obvious form this may take is the explicit or implicit encouragement of children to anti-social and destructive activities. A year or two ago, we were visiting Kenwood House with friends. Some of the period furniture in this house is protected from damage by ropes stretched between the arms of chairs or couches, designed

★ One of our patients, after reading the chapter in draft, dreamed of dialling the number 333! The use in London of the telephone number 999, as a means of calling on emergency services, is rationalized by the position of the number 9 on the telephone dials; it is probably, nevertheless, significant. Speed is important in emergencies, and on a London telephone it would be appreciably quicker to dial 111, which would of course suggest the basic family number. That this would be the rational choice is suggested by the fact that the numbers of London police stations usually contain several 1's.

to discourage attempts to sit on them. While we were there, a couple of children began to scramble over the rope on to one of the couches. One of our friends explained to these children, in a firm but friendly way, why this was not a good idea. The children took this in perfectly good part, and desisted at once. But their parents (who had been looking on) were furious. By their destructive (and no doubt selective) permissiveness, they had thus caused the children to provoke an intervention which they could then indignantly resent, moralizing this on the ground that it was an impertinent interference. By the very violence of this resentment, they showed their own unconscious involvement with the children's action. (For a comparable incident where fuller information is available, cf. the case of the patient whose dog bit him when he teased it, and the reaction of his parents—p. 245.)

We need not attempt to list the many more ways in which children can be used against strangers. (Domestic animals can be used similarly, as in the case of Lorenz's dog—p. 216.) Where the activity is aggressive, the children may be only too ready to take the opportunity thus offered of redirecting resentment from their parents. Similarly, children can be made to redirect fear, and project their own parents' hostility on to the outside world, from which (they will then feel) their parents will be the only protection. Children whose parents are predominantly friendly to them are specially fearless and easy in their relationships with friendly strangers. Those with predominantly hostile parents tend to be shy, timid and constantly ready to run back to the parent. (Conversely, they may not appreciate dangerous hostility in strangers when they encounter it.) This mechanism is a potent source of fixation on the parents. The more hostile these are, the more incomparably worse the outside world seems, and the more urgently parental protection is sought; but it is now the more necessary to repress the parents' hostility, and so a vicious circle is set up. This mechanism is expressed in the adage: 'Better devils you know than devils you don't', and also in the connexion between the words familiar' and 'family'. In Benton's experiments (p. 114), he was momentarily surprised to find no difference in emotional reaction of some subjects to the words 'Home' and 'Hell'!*

* See Appendix 13: Imprinting and Parental Protection.

The Use of Children vis-à-vis *Grandparents*

When grandparents are around, parents are prone to behave in the manner of the patient with his by-now familiar dog (p. 244 f.). The grandparents can be appeased by toleration as well as imitation of their behaviour towards the children. We may recall the patient who refused to intervene over the matter of her daughter's sweets (p. 237). Matters may, however, become more complicated. The Granny in this case used to forbid the patient's daughter (her own grand-daughter) to eat pickles, using the terrifying threat that they would rot the lining of her stomach. This threat was hence available to the child as a rationalization for complying with this arbitrary prohibition. On one occasion, the patient offered the child pickles. The child screamed that the patient was trying to rot her (the child's) stomach. She clearly implied that the patient was encouraging her to revolt against Granny, but would be unable to protect her from the inevitable punishment, and was thus merely trapping her to her destruction. She evidently had some grounds for fearing this lack of protection, though she was hopelessly enmeshed in fantasy. On one occasion Granny had attacked her for wanting a large helping of plums, and the patient had defended her rather feebly. Later in the meal, Granny roughly told the child to throw into the *fire* a paper napkin with which she was playing. That night, after Granny had left, the patient apologized to her daughter for the inadequate defence, and explained that all their troubles started from her own (the patient's) reactions to Granny. This was true and a well-meaning attempt at communication. But something in the phrasing must have conveyed to the child the impression, not that her mother now had more insight and would be more effective in future, but that her mother simply could not ever protect her from Granny. Later in the night, the child was terrified that the house would suddenly catch *fire* while they were all asleep, and was only comforted with much difficulty.

The child's reaction over the pickles raises another gambit which may sometimes actually be played. One person (e.g., a parent) may indeed trap another (e.g., a child) into revolt against a third (e.g., a grandparent), and then leave the cat's paw to the mercy of the third party. But a quite different situation may be mistakenly seen in this sinister light. The analyst, for instance, who encourages a patient to explore his own behaviour and breach his own defence system, may be seen as a dangerous tempter, encouraging the patient to stop appeasing his parents.

This fantasy may be entertained even when there is no real doubt of the co-operative intention of the 'tempter', and no doubt either of the unnecessary nature of the appeasement of people who no longer have any real control over the patient, and may even by this time be dead. The child himself is seen as a tempter by his parents (cf., the serpent of Eden—p. 214), for his explorations endanger their own mechanisms for appeasing *their* parents. The child may therefore be sacrificed to these menacing if illusory shades.

But parents may deal in other ways with conflicts of their own about reaction to *their* parents. We have seen how a parent can resolve a fantasy conflict by employing a child (p. 241). It is not always the id role which is conferred on the child. One boy patient recalled a quarrel with his parents, which occurred in his early childhood. This quarrel seems to have been sufficiently violent to cause him to run out of the house (Nicholson, personal communication). The row began over a Christmas tree, which the family had set up one year. The boy protested earnestly against having this Christmas tree, which both parents insisted on providing. Neither side discussed the matter rationally, and the boy gave no reasons at the time for his attitude; there was simply an angry scene. The analyst asked the boy if he could now see why he had taken this stand. The boy explained that he thought the Christmas tree would offend their orthodox Jewish friends; but in later associations it transpired that the person who was most orthodox, and who would have minded most, was his paternal grandmother, of whom both parents were afraid. In this instance, then, the parents adopted a rebellious role, while the boy was deputed to act out appeasement of the grandmother; the parents then attacked him for this. That their behaviour was not simply an expression of enlightened independence appears clearly from the violence of the scene.

The Family Triangle

The use of children against people outside the family starts in real earnest during their adolescence. But it is always based on, and takes its character from, the first and earliest scene of exploitation—the family triangle itself. The use of the child by one parent against the other can take many forms. The simplest instance is that of using the child as a herald or ambassador—without the traditional inviolability of such agents. In

one family studied a small boy was repeatedly used in this way. He would come to his mother with a message from his father, such as: 'Daddy says you ought to come and have tea'. His mother would then attack him (usually verbally in the first instance). He was thus simply used as a buffer. Father used him to provoke mother, and mother used him as a substitute target for resentment. Thus parents can interpose the child between themselves, and carry on the hostile aspects of their relationship indirectly. The child is in the thankless and alarming position of coming 'between the pass and fell incensed points Of mighty opposites'. Sometimes one parent will appear to console him for his treatment by the other, his sufferings being used as an occasion for blaming the parent responsible. In one family, the elder child's doll was broken by one parent in a quarrel with the other. The latter mended the doll with a great appearance of sympathy, making it the occasion for unsparing blame of the breaker. But when another doll of this child's was broken by her younger sibling, she met with no such sympathy. For the hitherto sympathetic parent was in the habit of using the younger child's misfortunes as an occasion for blaming the elder. The two incidents are mutually illustrative; the second shows that the mending of the first toy was not a friendly act, but an expression of hostility to the other parent. This poisoning of the child's mind by one parent against the other may come to a head in a family crisis, such as a divorce.

In fact there is always a definite relationship between the irrational behaviour of two parents—otherwise they would not have mated. By observing the overt behaviour of one, we may see what the other has repressed. (In so far as the mating was rational, the questions now under discussion do not arise at all.) But it is hard for the child to grasp that his parents cannot be observed and responded to in isolation from each other. While his intelligence is developing, he is specially prone to dissociation (p. 219), and the parents may encourage this in many ways. A colleague of ours does probation work with delinquent children. It is a frequent occurrence, he tells us, for the mothers to throw all the blame on their husbands for their inability to keep the children at home; in many instances, this rationalization is confuted by the fact that the mothers take no steps to see their boarded-out children for periods of years, even though no obstacles are placed in their way. If the child is encouraged by one parent to see the other as a villain, the fantasy thus provided is eagerly accepted as a spurious escape from the intolerable problem of facing the relations between the behaviour of two parents. The child will be glad

to sentimentalize one of the two rival exploiters, and concentrate all resentment on the other. The mass of contradictory impressions provided by the two parents may be split into such formations as superego and id (p. 241), all the properties of the superego being ascribed to one parent and those of the id to the other (cf. also p. 227). In the course of analysis, a patient always swings from one defence to the other, now attributing all his troubles to father, now to mother. The tendency is expressed in the heroes and villains of melodrama, a supreme expression of this attempt to split the parents into good and bad; drama, as Aristotle pointed out, turns on the mixed nature of each leading character. Much of the overt sexual activity of an individual, in particular, may depend on whether the villain parent is the one of the same sex as his or her own.

But the situation may be further confused. *Each* parent may misinterpret to the child the child's relationship with the other. The objective on either side will usually be to make the child hostile to the other parent, and so ready to act out overt hostility against the latter. In the course of such cross-interpretations, each parent may find many sticks with which to beat the other. Each may say much that is true about the other, not with the object of clarifying the whole situation for the child, but in order to divert attention from the critic's own hostile behaviour. A group of politicians can often find plenty of unpleasant truths to tell their dupes about their rivals, which will divert attention from their own plans—and vice versa. It may be thus, in miniature (and usually of course in milder form), in every household. In this tangle of conflicting evidence, where truth no less than falsehood may be used for purposes of deception, the still rudimentary intelligence of the child is hopelessly enmeshed. In resolving the conflicting interpretations put on each other's behaviour by his parents, he may totally lose sight of his own impressions. He will naturally welcome any false picture of the situation which implies that he has at least one co-operative parent, who will protect him from the other. At various times, in various moods, and when the hostile behaviour of one of the parents is more obvious, he will tend, alternately, to accept the proffered explanations and promises of the other. Thus arise two great dissociated masses of rationalization, profoundly incompatible, for in one the father is hero and the mother villainess, in the other the roles are reversed. *The child is now fixated, not only on one parent, but on both.* It is in this cleft stick that fixation appears to become permanent, and perhaps we have now stated the most

important conclusion in this book. Any procedure tending to dislodge one of the two fixations is liable to reinforce the other, and so far (though some progress may be made by reducing the two alternately) no procedure has ever succeeded, in any individual, in uprooting both. Each of the two fixations seems to cement the other in place.

Sentimentality, Identification and Double-Take

We have already discussed sentimentality as a particular form of deception (p. 173), related to the dependency relationship in which the goals of the exploitee are completely perverted to suit the fantasies of the exploiter (*Fig.* 24C2, p. 157). We can now see in sentimentality a reduction of the triangle to two sides—one parent and the child against the other parent. This may be emphasized by the deceptive reiteration of the word 'we' and its derivatives, by which 'I', 'You' and 'He' (or 'She') are reduced to 'We' and 'He'. The Athenian Empire began as a Confederacy for action against Persia. But once the power of the Athenians was established, there was nothing sentimental about their exploitation: they offered defecting or potential allies the open choice of subjection or destruction. The Romans introduced a note of sentimentality: *their* subjects were seduced into participation in the great name of Rome. Within the Roman Republic, the issue between nobles and people was initially one of open domination. Later, the latter were lulled by reiterated use of words which suggested that their interests were identified in some mysterious way with those of their masters. Cicero (from his essentially intermediate position) uses many of these euphemisms—for instance, his own policy of 'class concord', which in fact meant compact agreement between the two most powerful classes for exploitation of the rest. When the power of the Senate was threatened, they conferred dictatorial powers on their representatives, the consuls, in a formula which ordered them to take measures for the protection of the 'common wealth'. (Compare the Terrorist 'Committee of Public Safety' in the first French Revolution.) This language of double-think was enormously enriched and refined by the skilful propagandists employed by Augustus, who taught everyone to identify their own prosperity with that of such abstract expressions as the 'majesty of Rome' (cf. Syme, 1939). Sentimentality of this kind permitted the absorption of a horde of widely different cultures within the framework of the Roman Empire; it reached

its logical end-point when Caracalla extended to almost everybody the Roman Citizenship—and hence the right to pay him taxes.

Once the distinction between patron and subject has been blurred in this way, we can speak, with a more accurate redefinition, of direct *identification* (p. 230). Identification occurs once the child has irrevocably taken sides with one parent, so completely as to lose all sense of separate identity, accepting henceforward the view of the other parent proffered by the first. From the outset, the child may be used as an instrument of overt hostility by one parent against the other. But after identification he becomes a permanently docile instrument.

Where two parents are competing in this way, and where the child is doubly fixated, his overt championship of one is always complemented by a covert, unconscious impulse to act out for the other. One whole set of misinterpretations of his family situation will be covered by a contrary set. (There is a young branch of mathematics, now being vigorously developed, which may in time permit precise treatment of this sort of layering—cf. Harary, 1957.) The child may express this fundamental duality by acting out for one parent in an inefficient way, which the other can easily parry. Or he may suffer from a sort of Judas complex, oscillating in a dissociated way between his principals. Such instruments are two-edged. 'We but teach bloody instructions, which, being taught, return to plague th' inventor'. A *partisan* is never reliable— there is always a *double-take*. At the end of Tourneur's *The Revenger's Tragedy*, Vendice, who has just murdered the reigning Duke, expects reward from the nobleman Antonio, who may expect to profit by this death. 'Heart!' he cries, 'was't not for your good, my lord?' Antonio replies by ordering his execution, with the unanswerable remark: 'You, that would murder him, would murder me'.

The behaviour of Antonio may be found in parents. In many families one parent may provoke and even appear to encourage the child to criticize the other, only to turn upon him when he does so. This pattern is most succinctly expressed in Racine's *Andromaque*, where Hermione exerts all her influence over Oreste to make him commit the cowardly murder of Pyrrhus, much against his own inclinations. When the deed is done, she greets him with the classic remark: 'Who told you to?' Two parents may also unconsciously collaborate to engineer a situation in which the child is made to feel a Judas. In the long run, the most powerful alliance is that of the two parents against the child. This principle of family politics is summed up in the fable of the lion, tiger and camel,

who agreed to go hunting together. (We have not traced this fable, but are inclined to ascribe it to Ambrose Bierce.) When food ran short, the lion bravely offered to let himself be killed and eaten for the benefit of the others. 'No, no!' said the tiger, with tears in his eyes, 'we cannot let you sacrifice yourself in this way. You must kill and eat me instead.' The lion protested just as vigorously against this heroism on the tiger's part, so the camel felt he could indulge in a similar gesture. As soon as he had offered to be killed and eaten, the lion and tiger gladly accepted the offer.

Addiction, Phobia and Disgust

The mechanism of *phobia* arises as a set of unrealistic fears of one parent transmitted from the other. The infecting parent may resolve an ambivalent attitude to his or her partner by causing the child to act out the phobic component. The infecting parent may convey a quite unrealistic picture of the other parent's personality, so the child's phobia of the latter is not a direct reaction to her or him. At the same time, the infecting parent induces an *addictive* attitude to him- or herself, as a *protector*.*
Addiction is to a person (or later to an object) which is felt to be a protection against the phobic object. There is always a double-take here too, and the addiction and phobia may change places.

In transitions from one identification to its opposite, a mood of *disgust* may be felt. The total acceptance of one parent's interpretations may be viewed by the young child, still an imperfect symbolizer, in terms of feeding (cf. Chapter 6). This confusion persists in such phrases as 'swallowing a hero whole' or 'having one's mind poisoned against another person'. As the addicting parent begins to be viewed as phobic, a combination of fury and panic (p. 239) issues in the complex mood of disgust and revulsion expressed in the first soliloquy of Hamlet. Such a mood expresses a balance between the two identifications—an impulse to act out for the second deceiver against the first, restrained by intense panic about both. The result may be, as in Hamlet's case, a generalized nausea and inertia.

* See again Appendix 13.

The Mediator

We may now consider another aspect of the family triangle. One of our patients was quite ready to recognize the fact of her mother's hostility (though apt to distort and exaggerate it), but maintained over a long period of analysis that her father had been wholly co-operative. She had split her parents into one good and one bad. The first light on the split occurred in a certain session, some of which we shall now summarize.

The patient was well acquainted socially with a certain friend of the analyst's. She had shown in many ways a curiosity about the analyst's social relationships which sprang from irrational motives. On one occasion (she reported), when entertaining the mutual friend together with the latter's husband, she had made the slip of using the analyst's name in addressing him. Other evidence clarified the significance of this slip. The patient was fantasying that her friend was the analyst's wife, for then she would be able to find out a great deal about him indirectly.

The analyst pointed out the artificiality of considering the behaviour of the parents separately, for the behaviour of each must provide evidence about the behaviour of the other—they had elected to marry each other. If attempts were made to dissociate the relationships with the two parents, and thus repress the total situation, the repressed would return in an impulse to observe one indirectly *via* observation of the other. The patient had always supposed her mother to be hostile and her father co-operative towards her. In this session, she had been describing the analyst's friend as intensely hostile. She was impelled to recreate the split situation in the analysis, by regarding the analyst as friendly but equipping him (cf. the slip) with a hostile wife.

The patient now remarked that her mother had been behaving much more humanly, as a result of changes in her own behaviour due to the analysis. She (the patient) had firmly refused to be exploited, and this had led to some degree of insight and communicativeness on her mother's part (cf. p. 170). The analyst pointed out that identifications and transferences are based on the *past* behaviour of a parent. If the parent's behaviour changes when the individual is adult, the latter's defence system may be expressed in two ways. He may fail to recognize the change, or he may look for some other person whose behaviour is or can be thought to be like the *original* behaviour of the parent. The patient had cast the mutual friend (of herself and the analyst) in the role of her mother *as she was*.

These observations were followed by the patient's first important recollection about her father (who had died some time previously). She had been reflecting how much better the relationship with her mother would have been if only, in her childhood and adolescence, she had been able to stand up to her mother and not submit to her demands. She then suddenly recalled that on some occasions she *had* been firm with her mother (for instance, in refusing to wear some unsuitable clothes). On these occasions, her father had intervened. He had appealed to the patient: '*Do what your mother wants for my sake*'.

Here, then, is an important aspect of the family triangle. There is a sort of pathological regulatory process going on, of the kind which biologists call homeostasis—maintenance of the *status quo* by correction of any deviations from it. If the child's relationship with one parent shows signs of improving, the other may step in to prevent the improvement. Or if the child begins to explore the behaviour of one parent effectively, the other may step in to distract, inhibit or divert.

Some light was thrown on the irrational motives of the father by details of his professional career, into which we need not enter. His real self-esteem was low and he felt incompetent at any constructive work —probably far more incompetent than he actually was. He therefore felt he could only succeed by making himself indispensable in social relations as a *mediator*. If harmony prevails, such a mediator is out of work, and feels useless, and expects to be universally abandoned. He must therefore stir up with one hand the trouble he is to assuage with the other, like Penelope, taking her weaving to pieces every night, so that she will have work to do every day. Such people create social difficulties (in subtle and unobtrusive ways), which they can then ostentatiously mend. (They are obviously a menace in, for example, industrial or international negotiations.) Because of the unobtrusiveness, the patient found it difficult to detect her father's manœuvres. She saw in him only the kindly parent who protected her and smoothed her troubled relations with her mother. Yet he was evidently compelled to intervene if these relations showed signs of improvement—and to intervene in such a way as to imply that he was healing an otherwise disastrous breach. The patient had (at the time of the session) recently written some verse about her dead father, in which (as she noticed herself) she found herself including the line from *Hamlet* about the 'bourne from which no traveller returns'—a piece of wishful thinking on the Prince's part, after he had already seen his father's ghost! The Elder Hamlet is a case in point of the

father who surreptitiously inflames a child against his mother, so that he can then step in and restrain the child, like a benevolent mediator (cf. Chapter 9, especially the opening quotations). Finally, an appeal from one parent to appease the other obviously has a reinforcing effect which no child can be expected easily to withstand.

One consequence of dissociating the relationships with the two parents will be the return of the repressed linkage in later life in relationships with any *one* other person. In all such relationships, there will always be an imaginary third person (like the pigeon's imaginary rival, p. 466). This aspect of the matter appears in the patient's attempt, while in a relationship with the analyst, to *complete the triangle*.

The Provocation of Sibling Rivalry

The arrival of a sibling (brother or sister) and the development of speech in the newcomer might seem to afford a great relief to the hard-pressed child. Here is someone not concerned to exploit him, with whom he can freely communicate without fear of attack or criticism. Only-children often feel lonely, and long for siblings (this longing may emerge later as a wish to have more and more children of their own). To the extent that the parents are hostile, however, this wish is repressed, and, when the sibling comes, this solace is denied. A communicative relation between two or more children would defeat the exploitive plans of the parents for each (cf. p. 162). It may therefore be averted by the provocation of *sibling rivalry*. This provocation takes the usual form of combined projection and infection. Its effect is rationalized by the parents (and by some psychologists) as an inherent and inevitable taint of original sin, it being supposed that siblings will naturally hate each other.

The real course of events is clear even in myth. The mutual slaughter of the sons of Oedipus in single combat follows a curse to this effect uttered by their father. (When the curse is uttered, one son has already driven out the other and seized the throne of Thebes for himself, but this is a defence; obviously Oedipus had had plenty of time and opportunity to prepare the ground for this rivalry in his sons' childhood.) The myth of Cain and Abel is even more explicit. Jehovah provokes Cain by contemptuously refusing his offering and ostentatiously preferring that of Abel. Cain is led to understand that his fault lies in not providing a *blood*

sacrifice (being a farmer, he had brought 'fruit of the ground'). He is as good as instructed to act out Jehovah's blood-thirsty impulses by killing his brother. But of course, when the deed is done, he meets with the usual parental attack at the hands of Jehovah (cf. pp. 241, 258). In one of the sequences of pictures in the Ferdinandeum at Innsbrück (p. 214), the role of Cain as the instrument of Jehovah is made specially clear. He is depicted, when in the act of fratricide, in *exactly* the posture of the angel who, in an earlier frame, drives Adam and Eve from Eden.

The notion that one of two children is the favourite, and the better loved, needs careful scrutiny. It never refers to real love, which from its nature cannot be polarized in this way. It only means that the favourite is picked out to be *exploited*, while the parental attitude to his rival is mainly *competitive*. In the long run, the effect on the favourite may be the more disastrous.

The child may be prepared for rivalry even without the appearance of a sibling. We have seen how this can be induced by creating anxiety about food and other gratifications (p. 234). The whole story of father, boy, dog and canary is an excellent illustration. A competitive attitude is induced by transmitting the illusion that there is not enough food, etc., to go round, and any newcomer must be treated as a threat to one's own satisfactions, when the real threat comes from the parents themselves. The whole mechanism of the Ungolden Rule is enlisted, and, once we apply the concepts of p. 245, we have little to add to the subject of sibling rivalry. Each sibling may seek, like Cain, to use the other as a sacrifice. Once the rivalry is engendered, the children will try to use the parents against each other.

Burlingham's book (1952) on twins provides copious examples of rivalry provoked directly by a parent. Her detailed simultaneous records of behaviour along all paths of the family relationships speak eloquently for themselves, and the reader may find in her book abundant evidence for the ideas of our present chapter. We may take two typical instances (Table 23 and p. 56 of Burlingham). The mother of the twenty-months-old twins Bert and Bill takes them out for a walk, and reports that Bert was highly aggressive to Bill. Later in the day, she comes to the clinic in great alarm to ask if Bill is all right. She had dreamed that Bill had fallen and was seriously injured; in the dream everyone looked away from her or reproached her with their eyes. She had evidently had competitive hostile impulses towards Bill, but was restrained from acting on them. She had therefore either projected her aggressiveness on to

Bert, or actually caused him to act them out for her. Bert himself seems
to have been in a frightened state that day.

The other examples concerns two other twins, Jessie and Bessie,
aged three, and their mother. 'Jessie in the mother's presence tried to
take a toy from Bessie and hit her when she did not succeed. The mother
told Bessie to hit back. Bessie would not. The mother insisted and told
her three times to do so. Finally Bessie went for Jessie and scratched her
very badly in the face. All three were very upset. . . . On another occasion,
Bessie hit Jessie and Jessie was being comforted. Bessie shouted: "My
mummy said so".' Incidents like this need no comment.

A further projection takes place when *jealousy* is ascribed to children.
They are then credited, not only with competing like animals, but with
competing in the specifically human way for the right to exploit their
parents. This is an extension of the projection made on to each child—
that he is exploiting, rather than exploited (p. 221). One patient reported
in a session that her six-year-old daughter was showing serious symptoms
of jealousy, directed against her baby brother. In fact, during the few
months before and after the arrival of the baby, the patient had already
felt exploited by him, and had reported fantasies of his death through
disease, of killing him herself before or after birth, and specifically of
his being killed by his sister. In the few weeks preceding the session, she
had felt less hostile towards her baby, but had complained of alarming
feelings of hatred for her daughter. A few days previously, the daughter
had been reading, and the patient playing with the baby, who uttered
a crowing laugh. 'Be quiet', said the daughter to him. The patient was
furious, and felt that her daughter was destroying her own relationship
with the baby. A little later, the daughter remarked: 'I wish you'd never
taught me to read'. Other evidence suggested that this really meant:
'I was taught reading in order to keep me quiet'. A day or two later,
two adult friends came to stay with the family, bringing their little girl.
The patient (as appeared in analysis) felt unconscious resentment towards
these adults. She asked her daughter to be particularly nice to their little
girl; in fact the daughter was most unpleasant to her, constantly implying
that the little visitor was intruding—exactly as her mother really felt
about the adult visitors. In the session, the patient remarked that she could
'sympathize' with her daughter's behaviour; but her actual reaction to it was
one of fury, and she took it out of her daughter most of the following day.

Thus the patient felt hostile to the baby, repressed this feeling, and
redirected it to her daughter. The daughter acted out her mother's

hostility, by treating the baby as she felt she was treated herself. This was pointed by another remark of the daughter's, quoted in this session: 'When I am thirteen I shall hate the baby' (who would then be approximately as old as she herself was at present). Because of her daughter's behaviour to the baby, the patient could then rationalize her own fury towards her. She could project on to the daughter the responsibility for damaging her own relationship with the baby, when she herself was doing just this to the relationship between the two siblings. The episode with the visitors was another expression of the same pattern. Children can in time be made to conform to any projections. But initially it is the parent who is jealous. The daughter of this patient was constantly in trouble in relationships with other children, until it became clear to the patient that she was actively trying to estrange the child from other children in various ways, in order to have her to herself.

Another family, with a young boy and an adolescent girl, provided copious instances of a policy of 'divide and rule' on the part of the parents. Tension was provoked, for instance, by making the children share a room until the daughter, after some analysis, insisted on having one to herself. The mother would not allow the boy to overflow with his play into any other part of the house, but expected the girl to permit this in her part of the shared room. The girl felt a lively sense of injustice. The boy felt that his sister bullied and bossed him and saw her as a second mother. These feelings were unconsciously fomented by the parents. Thus the sister was made to leave a cinema with her brother when a film was about to be shown which their mother considered unsuitable for him. This was done, the girl felt, because her brother would have made an outcry if she had stayed without him. On another occasion the boy was clamouring because his sister had something which he had not got, and which would have been inappropriate for him. Instead of pointing this out, the mother remarked: 'Your sister is older than you, so it's right for her to have some advantages'. In the course of analysis, it became clear to both children that they were conforming out of fear to their parents' 'divide-and-rule' policy, under the impression that each was safer on his or her own. The children now began to discover that they were really very good friends. The brother was apprehensive of what would happen when his sister went to boarding-school. He drew a little diagram to indicate that his mother's hostility would now be expressed to him directly instead of *via* his sister. But he remarked that he was now incurring much less hostility from the latter.

From time to time we have noted the way in which animals of other species are enlisted into the service of human defence systems. The practice of training one species of animal to hunt another gives plentiful scope for projections of the sort of family situations discussed in this chapter; hence arise violent attitudes (in either direction) to the major bloodsports. Direct references to these sometimes crop up in sessions in the expected contexts.

As the family triangle becomes a quadrilateral (etc.) by the addition of new children, new balances of competitive exploitation become possible. One parent may use one child against the other parent, while the child is caused to redirect from his user against a sibling. In this way, on a larger stage, Hitler used the Germans against the rest of the world and caused them to redirect resentment from himself to the Jews. The simplest situation is a division of the family into two camps—father and son versus mother and daughter, or father and daughter versus mother and son. Any such overt division will be matched (through the process of double-take) by a covert division of the contrary kind—for instance, the son who acts for father will also be impelled unconsciously to act for mother against his overt master. Shifting alliances appear—and alliances are by their nature impermanent, since they have nothing to do with co-operation. In general, two siblings may be made to fight between each other the quarrels between their parents. The traditional British policy of the balance of power, exercised through several centuries, was designed to neutralize the explosive situation of two near-equal armed camps (with principals and identifying satellites) by the maintenance of a third *independent* power, which could hold the balance between them.

The Study of Family Relationships

It will be clear by now that we cannot understand the behaviour of an individual in isolation. If we are to make head with the exploration of this tangle of interactions, we must study the behaviour of as many members as possible of a given family, synchronously and in a co-ordinated manner. If an isolated individual is studied without any independent observation of the parties to his relationships, we are in danger of the two opposite errors of believing all he says about the behaviour of others, or (no less misleading) of dismissing it all as projection on his part. An analyst will evidently have every irrational inducement to take

sides—e.g., to champion a child and blame his parents, or to regard one partner to a marriage as the guilty partner. To do any such thing is merely to strengthen rationalizations and dissociations. It is easier to avoid if we are able continually to hear more than one account of the same incidents.

When Freud began his work he was pioneering in a totally new field. It was natural and proper that he should deliberately restrict his own field of view. He therefore established for himself a number of rules, such as that of not treating patients who were married to each other or having an affair together, or members of the same family. The situation has now changed. 'Rigid rules', writes Vidor (1956), '(such as that . . . mother and child should not be seen . . . by the same person)—still prevalent in many child-guidance clinics—seem a disadvantage while our knowledge and experience in this field is still limited and inconclusive'. Synchronous observation of all parties to a relationship offers rich rewards, some of which are already beginning to appear (e.g., Bateson *et al.*, 1956; Caplan, ed., 1955). If we can begin the systematic study of relations between behaviour of parents and behaviour of children (a study to which everyone can contribute), we may clear a path through the undergrowth of automatic relationship. Thus we may hope to bring to full fruition that insight into human interplay which is dimly foreshadowed in the very greatest concerted vocal music of such masters as Mozart and Verdi.

Pseudosex

The expense of spirit in a waste of shame
Is lust in action; and till action, lust
Is perjured, murd'rous, bloody, full of blame,
Savage, extreme, rude, cruel, not to trust . . .
<div align="right">William Shakespeare</div>

C'est Vénus tout entière à sa proie attachée.★
<div align="right">Phèdre (Racine's *Phèdre*)</div>

Sex, Intelligence, Childhood and Adolescence

Sex hormones have two functions in vertebrates. They bring the sexual behaviour of the individual to maturity at puberty, along with his or her anatomical sexual apparatus, and they then reversibly control the level of the mating drive (*Fig.* 2, p. 45). The second function has disappeared by the stage of primate evolution represented by man (p. 140); real sexual behaviour in man has taken on a new function in close relationship with the mechanisms of intelligence, co-operation and communication (p. 210). It is therefore natural that sexual behaviour itself should come to maturity in the human individual at adolescence, at the time when he or she should first be bringing a fully organized and integrated intelligence to bear on social relationships outside the family (p. 221), and also at the time when his or her sexual organs have fully matured. It would be inappropriate for sexual behaviour to occur before

★ Literally rendered, this untranslatable line means: 'It is Venus' (goddess of sex) 'altogether clamped to her prey'. The words are spoken by Phèdre to describe her addictive passion for her stepson, Hippolyte.

puberty, while the child is still largely restricted to social development within the family, while his or her intelligence is still developing into its final form, and while his or her sexual organs are immature. In a rational human society, we should not expect to see any kind of overt sexual activity in childhood, except as a fortuitous result of explorations by the child of his or her own body and its functions.

In fact, however, parents readily redirect their own sexual impulses on to their children (p. 212), and proconsciously or unconsciously project all manner of sexual impulses on to them (p. 214). They almost universally succeed in inducing overt reactions in children of a kind at least apparently sexual, and explain these by means of their projections. Before Freud, even the projections were repressed. Freud discovered and reported the actual fact of overt sexual behaviour in children; but he was unable to account for it in a rational way. His train of thought is instructive. When treating his first hysterical patients, he discovered to his surprise that one and all appeared to recall being raped or seduced in their childhood by their parents. At first he was inclined to believe these accounts, but as they continued to accumulate he became rightly suspicious. But he now went to the opposite extreme. He did not envisage that the 'memories' of his patients might be concrete representations of their parents' *fantasies*, transmitted by intention movements, and confused by the patients with full overt behaviour. Instead, he credited children with powerful sexual urges, which, he supposed, they expressed when adult in wishful fantasy memories. He was led to conclude that children are inherently or innately disposed to sexual behaviour, and his theories reinforced the projections of parents by lending them scientific authority. The peculiar types of sexuality which parents ascribe to children are those of what we shall call *pseudosex*—a mechanism with a history of development in childhood, adolescence and adulthood, which could not conceivably appear suddenly and innately in children. Since some pseudosexual behaviour *does* occur in children, Freud was led to a peculiar view of sex itself. It was Freud's supreme achievement to perceive, as nobody had done before, that sex is in some way basically involved in all the malfunctions of human behaviour. He documented this discovery with a mass of factual observation, carefully recorded as such. We can hardly, therefore, complain of his theories or reproach him for not taking the next step. We might as well reproach Christopher Columbus for not circumnavigating the world. And yet the next step is a simple one which will not by now surprise the reader. Everything falls at once

into place if we suppose that pseudosexual motives are projected on to children by their parents, and that the parents act in such a way as to induce the actual appearance in them of pseudosexual activity.

A glimpse into the thoughts of children was given us by a scientist friend, to whom we owe this charming and authentic illustration. He and his wife were sending off their children (a boy aged about eleven and a girl aged about nine) on a long train journey. The little girl asked if she could share her brother's sleeper, obviously for his company on the trip. The parents foresaw trouble from other authorities. As they were raising objections, the boy made a remark which should be inscribed in letters of gold—'*It's all right, Daddy; we're not at the mating age yet*'.

The Linkage of Drives and Pseudosexual Symbolism

The baby starts life with a number of primary drives whose motor expressions mainly take the form of signals to the parents (p. 220). If the baby's appetitive drives are severely frustrated and his emergency drives of rage and fear persistently aroused (by parental misinterpretation of his signals, p. 220), a series of simple instinctive conflicts will arise, in the manner of conflicts in animals (p. 86). In these circumstances, there may be successive displacement from one primary drive to another (Hayes *et al.*, 1953). These displacements may be perpetuated by primitive rationalizations. In this way there is formed a whole complex of linked drives, synchronously aroused in certain situations. One of the drives into which all others may displace is that of *sex*. This will occur the more readily because (as an intelligent boy patient spontaneously suggested in a session) sexual activity is not needed until after puberty. Defect and malfunction of sexual activity will constitute little sacrifice at the time; its consequences will be felt later. Eventually, all or nearly all the drives become linked together in this way, including the emergency drives of rage and fear. Thus arises the complex we call pseudosex. In a sense, it is like a reversion to the F.A.M. system of vertebrate courtship (p. 201); but it also includes in the complex all drives associated with the individual's personal bodily comfort. *It is this complex, together with the rationalizations that weld it together, which we can recognize as what Freud called the Id* (p. 241).

The process of linkage does not occur in a haphazard way, but in definite

relation to the particular pattern of the parent's id, which the parent will transmit by a patterned malfunction of parental behaviour. With it will be transmitted fully-formed rationalizations, in the way we have discussed in general (p. 229). But the interpretation put on these by the child is conditioned by the rudimentary state of his intelligence, and the child expresses his experience in terms of crude and bizarre symbolisms (p. 227), based upon his own bodily processes as these are impinged upon by the behaviour of his parents. Thus social relationships come to be represented in strange oral, anal and pseudosexual fantasies, through a profound confusion between the workings of the child's body and the workings of his social environment.* As intelligence develops, these fantasies are dissociated (p. 226), and their illogicalities and incoherences underlie all subsequent irrational behaviour. The notion of relationship with another person, with all his nuances of individual personality and shifting moods, dissolves into a welter of key stimuli independent of the individual personality, of breasts and phalluses, hands and feet, milk and faeces; these may in turn be replaced by further inanimate models. Behaviour comes increasingly to be governed by instinctive mechanisms *released* by such stimuli, as in the lower vertebrates. It is in such terms that

* But we must not overlook the effect of reactions by adults at the stage at which a child is *learning* to speak. The child has gradually to work out which words apply to which sets of things. In seeking to do so, he may be selectively confused by selective reactions on the part of a parent. One patient was cooking a chicken in a pan when her child asked her: 'Baby?' The child was not yet clear how specific was the application of this word. The mother, perfectly well-meaning, was horrified and assumed that the child was exhibiting some alarming fantasy. From that time on, she took care not to cook a chicken in the child's presence. The child may well have drawn from her emotional reaction conclusions which had never entered his head before.

The selective encouragement or discouragement by parents of behaviour patterns in their children is closely analogous with the selection of heritable variations in populations of organisms (Russell, 1958*a*, 1959*b*, in preparation). Darwin, studying the changes in domesticated animals and plants, noticed that some were due to deliberate, methodical selective breeding, while others were due to *unconscious* selection. Without being aware of it, breeders were in fact 'choosing' to breed from individuals with certain properties, and discarding individuals with other properties. Just so, without being aware of it, parents may selectively encourage or discourage the development of particular behaviour patterns in their children. Some readers of this book in MS. have found great difficulty in grasping how unconscious processes in parents can produce such marked effects on their offspring. It may therefore be helpful to consider the analogous case—the great changes brought about in domestic animals and plants without conscious (or proconscious) intention. With this in mind, it is well worth reading the chapter on 'Selection by Man' in Darwin's *Animals and Plants under Domestication*.

the child's behaviour is at first rationalized, and the parent's own behaviour and deceptions interpreted.

All the hostile behaviour of the parents impinges at first on the child as a reduction of his comfort: he is made to feel hungry, cold, dirty or tense. The result is a confusion between the exploitive social world to which he is exposed, and the maintenance of his own bodily comfort. In time, all those activities which should naturally be related to his own comfort, and should have no social content at all, become merely a means to appease threatening parents (or to reassure them—p. 222; to save repetition, we shall use only the appeasement concept in this chapter). Hence the child loses all natural control of his bodily activities, which become for him expressions of social reaction, controlled by his parents for their exploitive purposes. The release of bodily discomfort or tension now seems equivalent to the removal of threatening danger from outside. If the child, as he grows up, establishes identifications, there is a redeployment. By this time, the pseudosexual activity of masturbation has become the supreme executive for what was originally comfort activity distorted into appeasement. In sexual and other social relationships, the individual may now reverse the original confusion. For him other individuals are now seen, not as such, but as means for removing his own bodily tensions and discomforts; as bundles of key stimuli for his pseudosexual releasing mechanisms. Real sex is a matter of arousal (p. 208); pseudosexual relationships are governed by the now internal instinctive fluctuations of the individual, for which he may seek releasing stimuli, exactly like a lower vertebrate. When he comes to have children of his own, they will be for him tools or instruments to be controlled in their turn, bodily activities and all. Thus he will transmit to them the id he received from his own parents. All this mass of confusion can be reduced to that between social and non-social activity.

The Seducing Parent; Pseudosexual Appeasement

We have given one reason for the enlistment of the sexual mechanisms before they are naturally matured at puberty. But they may also be directly and prematurely aroused by seductive behaviour on the part of the parent. A parent may practise overt proconscious seduction, by (for instance) taking a child to bed and engaging in mutual sexual stimulation. Such overt seduction is probably commoner than is usually supposed.

More usually, in our culture, the parent plays the familiar trick (pp. 126, 241) of covertly and unconsciously provoking in the child sexual advances which are then repelled with horror. In either event, the sexual reaction is enforced by threat, and the child is taking the old royal road of primate appeasement (p. 143). The theme of sexual seduction of children by parents is not unknown in literature. Famous examples are Shelley's *The Cenci*, in which a father threatens to rape his daughter, and the *Hippolytus* of Euripides, in which a step-mother tries to seduce her stepson and, failing, denounces him to his father as having assaulted her, as a result of which the father brings about Hippolytus's death. (Racine's version of this myth has provided one of our chapter headings.) More covert expressions of the same theme are the stories of Bellerophon and of Joseph (in his encounter with Potiphar's wife). The element of projection is beautifully brought out in the myths: the child is accused of the crime of his parent. (The underlying hostility of parents was a favourite theme with Euripides, especially that of mothers, of whom he has a lurid gallery—such as Medea, who murdered all her children, and Agave, who tore her son in pieces. The force with which he conveyed the horror of such situations earned him the reputation of a misogynist.) Sexual reaction is always the most effective mode of appeasing a threatening parent, and this again leads to a central role of sex in the pseudosex complex.

Even in rats, the exposure of young males before puberty to sexually receptive adult females permanently distorts and impairs their sexual behaviour (Kagan and Beach, 1953). The premature arousal of sex in a human child has more general repercussions. It must be peculiarly damaging to his self-esteem, for this is an activity he cannot perform with success from sheer anatomical immaturity. Here is a particular and important case of the mechanism of premature challenge we have discussed in more general terms (p. 224). It will take its toll later in life, when the individual is really ready for sexual relationships. And it must be a prime factor in bringing about fixation on the prematurely arousing adult.

The Threatening Parent; Toilet Training

For the rest of this chapter we can only select, often arbitrarily, from a prodigious mass of fantasy and confusion which could form the subject

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of many books. We shall try to indicate some of the more important lines of pseudosexual development and its rationalization, leaving a more comprehensive treatment for another work.

We can begin with the process of toilet training. (Much of what will be said applies to urination as well as defecation; in boys, in particular, urination serves as a bridge to other activities in which the penis is involved.) Defecation has two main rational aspects. On one hand, it is a means of removing waste matter from the body, and in the process reducing internal discomfort associated with the alimentary tract. On the other hand, the rational planning of defecation ensures that the faecal matter is efficiently removed, and does not remain on the surface of the body to cause skin discomfort. These two aspects are confused in the Freudian term 'anal'—as well as in the famous advertisement about 'inner cleanliness'. Both aspects are concerned with the personal comfort of the individual, and the second merges naturally into a disposition of the faeces which will not inconvenience other people either. The timing should be a matter of internal sensation; the individual, on becoming aware of a need to defecate, will arrange to do so in a suitable manner as soon as is convenient. There need not be any urgency about the matter; it is possible to postpone defecating for days without prejudice to health. The capacity for such behaviour can easily be acquired by a child, when he is old enough to understand how to make himself independent of parental assistance in a matter which mainly concerns his own comfort.

But all too often toilet training is initiated long before this stage—sometimes even before the child can walk. Such training is associated with parental hostility, or it would not occur so prematurely. Nor, in such families, is the child taught how to secure his own comfort without assistance. Rather, he is indoctrinated with some rigid routine, such as an unvaryingly regular performance every morning (the one crime a day of *Ruddigore!*—p. 247). If the child defecates at other times and in unsuitable places (e.g., in his bed at night), he is not encouraged to avoid this on the ground of the resulting discomfort to himself. Instead, it is treated as a rebellion against the code which his parents are trying to impose by threat in some form or other.

In the early stages of the development of intelligence, the child is prone to dissociate, and incapable of complete generalization (p. 219). He is thus faced with a problem altogether beyond his scope. On some occasions, he is hectored into defecating; on others, this activity is regarded with fury and revulsion. We cannot expect the very young child

to discriminate between the two situations. Instead, he will dissociate them, and from the outset his approach to the problem will be beset by a fundamental conflict—whether to defecate or not to defecate is the way to appease his parents. In this imbroglio, any question of his own comfort is lost sight of. The imposition of any rigid routine must conflict with the child's own needs. It must entail that he is sometimes prevented from defecating when he wants to, and at other times forced to when he does not. Parental instructions are thus superimposed on his own natural wishes, and the whole situation is permeated with an atmosphere of danger. (Similar consequences can arise over feeding, when a child is forced to eat food he does not want, or at a time when he is not hungry, and forbidden to eat food he does want, or when he is hungry. The atmosphere of threat may here be doubly disastrous, for it produces physiological effects which oppose the proper conditions for digestion. One patient recalled that at some meals as a child his mouth was completely dry.)

The child will not, therefore, see the act of defecation as a means to his own comfort. Instead it will be a means of appeasing, and hence removing, the threatening parent who stands over him anxiously urging him to do his stuff. Macbeth expresses this confusion between bodily comfort and social relations—'What rhubarb, senna or what purgative drug, would scour these English hence?' On other occasions, defecation will seem to be a dangerous activity which positively evokes threat. It is now easy for fantasies to arise about the faecal matter itself. The parent may insist on seeing it in the pot, to make sure the child has produced it; conversely, it is the tell-tale presence of faeces in the bed that causes so much trouble in the morning.

Let us consider the former situation. The production of faeces serves to appease or physically remove the threatening parent. The faeces can therefore be rationalized as either aggressive weapons, which remove a source of danger, or much-coveted gifts, which appease the threatening individual. Both fantasies are merged in the Wooden Horse of Troy. 'I fear the Greeks', said Laocoon to the Trojans when they found this apparent parting present, really full of armed men, 'even when bearing gifts' (a famous line of Virgil). These notions may lead in many directions. One development is represented by the fantasy of a patient who wished he could have a little box in which to store up his faeces; he would then be able to produce them on demand. From this origin come a host of fantasies about *money*, which can be used both to remove an obstacle

and to appease a threat. Hence the principle of saving money for a rainy day, which proves so disastrous in reality to its advocates in times when money is depreciating. If the faeces are stored inside the body, this not only averts the disaster that follows if they are found in the wrong place; it also provides a store of peace-offerings for the morning. This way lies constipation, which averts the consequences of bed-soiling, but does not save the child from complaints when he is on the pot.

The acts of removing the faeces from the body and removing the parent from the neighbourhood are associated. The child may rationalize the conditioned linkage by means of the fantasy that the threatening parent was *inside him*. Conversely, when the child is made to eat up unwanted food, he appeases the parents by removing the food *into himself*. He may then think of appeasement as swallowing his parent, as we speak of swallowing an insult (cf. p. 259). Thus his external environment and internal bodily processes become thoroughly confused. Hostile parents will seek to make him feel that his unaided efforts at satisfying his wishes are disastrous. They may ensure, for instance, that he is sick when he eats enough of what he likes. This can be done by simply suggesting that vomiting will ensue; the child will appease by conforming to the programme. Thus he becomes less and less confident about his own capacities, and more and more ready to delegate the control of his own body to parental schedules, which in fantasy he will seem to swallow.

Further complication arises from the reactions of the parent both to the faeces and to himself. When they find him in a soiled bed, they may express extreme disgust and revulsion. In destructive criticism, the favourite adjective is 'dirty'. It conveys to the child, who confuses himself with the faeces (since both are reacted to in the same way), the impression that he himself is doomed. For the only way to safety is by appeasement, and it follows that rejection of his offering means the utmost danger to himself. Much is talked of *rejection*; it always means a failure by the rejected person to appease successfully. Closely connected with the resulting self-disgust is the state of mind called *depression*. Here it is felt that *nothing whatever* the individual does will be approved of, and hence that he can do nothing whatever without incurring danger. The characteristic of severe depressions is the complete immobility of the subject. Suicide is a logical result, for if no needs can be satisfied without desperate danger, the subject of such a fantasy has no other escape. By this time self-esteem is beginning to mean the ability to appease the parents; depression represents its lowest ebb. The parent reacts similarly to child and faeces;

the child constantly sees these rejected offerings removed and destroyed; this, then, seems his inevitable fate in the mood of depression. The patient who made his dog jump wider and wider lengths until it fell into the water (p. 244) realized (in his analysis) that this was a reference to the fate of faeces. Anything will seem preferable to depression. The child will seek at all costs to evolve a mode of behaviour, in fact or fantasy, which will appease the parents and therefore enable him to do *something*. For, when the parents disapprove, they are really projecting their own fundamental depression on to the child, and making him express it instead of themselves.

All these problems recur (to be further embroiled) in the context of general bodily cleanliness. Parents can nag about dirty hands and the like, as a convenient means of destructive criticism—that is (as we can now say), of *transmitting depression*. Personal cleanliness then no longer seems a matter of personal comfort, to be dealt with rationally by conveniently spaced ablutions, but again a matter of appeasement. Personal squalor may seem a mode of rebellion. The fantasy of saving up may also be expressed in a chronic state of dirtiness—for then the means of appeasement are constantly at hand: the individual only has to have a bath in direct reaction to his parents' orders. If he was already clean, having bathed for his own comfort, no such means of appeasement would be available. Parents who continually nag their children about cleanliness are far from pleased in fact if the latter become able to look after themselves in this respect.

Every time an appetite or comfort activity is enlisted in this way as an emergency executive mechanism, personal discomfort must be increasingly repressed. Thus the individual gradually loses touch with conditions in his own body. Hence arises the fantasy of mind and body as separate entities (the dualist philosophy of Descartes), and the necessity to re-establish contact in indirect ways. But the repressed returns, and the turmoil of discomfort and fear and rage engenders intolerable tensions and anxieties, which the child must somehow relieve. He does so by *masturbating*, and this is the origin of pseudosex.

The Masturbation and Menstruation Fantasies

By serving as a displacement activity for all other drives, and when accompanied by suitable rationalizations, masturbation enables the child

temporarily to repress all his anxieties—all his own discomfort, and all the feelings aroused by the hostile behaviour of his parents. Only then (like animals who have to find a safe lair for the purpose—p. 54) can he go to sleep. In the morning the effect wears off, the repressions are partly lifted, and the child is brought face to face with the depressing atmosphere of the home. Many individuals, when adult, find difficulty in facing the morning; others overcome this in various compulsive ways. In adult life, when overt sexual behaviour comes to be used as a form of masturbation, there may be a similar recrudescence of anxiety or depression after orgasm. Hence the old Latin tag—'after intercourse all is gloom': certainly not the experience of those who have been engaged in really sexual intercourse.

If masturbation is to serve the purpose of a general expression of pseudosex (in the manner of a consummatory act), it must conform to certain requirements. It can readily be associated with defecation and urination, and, as (in the child) there is no tell-tale result, it will appear relatively safe. At least the child is not producing faeces at the prohibited time and place. But the rationalization of all this requires an accompanying fantasy of central importance, which we call the *masturbation fantasy*.

There are many permutations of this kind of fantasy, but all have certain things in common. The fantasy may be that of beating someone or of being beaten; of raping someone (an act conceived of in terms of childish misinterpretations) or being raped; of tying someone up, or being tied up; of torturing or being tortured; of engaging simultaneously in activities in which mouth and anus figure, such as manual or phallic stimulation of the anus or mouth of the subject, or of someone else by himself; of being cleaned or cleaning someone, disguised in a variety of ways; of being forcibly or seductively masturbated by someone else (a fantasy facilitated, for example, in boys if their mothers have held their penises for them during urination); of being a girl (in a boy) or a boy (in a girl); of insulting or destructively criticizing someone or being subjected to this; of murdering or being threatened with death; of wearing special clothes or dressing others in special ways; of looking at pseudosexual activity in others or exhibiting it to them; and so on, and so on. Every variety of human irrational automatism is represented somewhere in this dreary gallery. Whatever fantasy is adopted, it represents, in condensed and concentrated form, the pattern of appeasement which the child must adopt in his general everyday behaviour in order to secure parental approval. Any given fantasy may contain several of

the elements mentioned. Any given fantasy may be rationalized in a special sense by the construction of a more or less elaborate story whose climax is to be the condensed form of the fantasy. The fantasies are full of key stimuli—signalling breasts, phalluses, feet, hands, articles of clothing, etc.—which may be presented by increasingly crude models. In the process of masturbation, the fantasy may be acted out in so far as this is feasible; for instance, the child may dress up specially or beat himself. The child may or may not play the 'active' role in the fantasy, according to the parental role to which he is to act as supporting part (cf. p. 123). Thus one boy patient has fantasies of whipping women, which he derives implicitly from his mother, who has fantasies of being whipped. Always, in whatever form and however disguised, the fantasy expresses a blend of bodily discomfort with a situation of threat, danger, dominance and exploitive hostility. Whether or not the child plays the dominant partner in the fantasy, he is always sanctioning his masturbation as a supreme expression of precise conformity to all the impositions of his parents. In the masturbation fantasy of any individual, we have a complete (though highly compressed and coded) version of all his family relationships in their competitive and exploitive aspects.

By thus concentrating and condensing all his distressing relations with his parents into the masturbation context, the child can largely dissociate them from his everyday life. The fantasy itself is proconscious during masturbation in the child (and in many adults), but it has undergone so much coding by repression and condensation, that its relations to the rest of the child's experience have become obscured. It may be based upon actual episodes, in which a parent transmitted some aspects of his own masturbation fantasy in a literal way; in other instances, it corresponds to nothing that was *literally* acted out by a parent. For the child's life outside the masturbatory situation, the fantasy may be unconscious, permeating his behaviour with the patterns of appeasement which he has been made to evolve and express in it.

The wise parent will in general discourage a child from acting out a compulsive fantasy, and then encourage him to explore its basis. There is no doubt that masturbation has no direct physiological ill-effects; there is equally no doubt that it is neither rational nor enjoyable, though the transient relief from anxiety may be mistaken for enjoyment. In no case is it a simple expression of the child's own real wishes. However, it clearly reflects a difficult interpersonal situation. (Indeed the earlier it appears, the more severe this situation must be, and childhood masturbation

indicates greater disturbance than masturbation in adolescence.) When it first appears, therefore, masturbation may be regarded as a signal from the child that something is wrong in the family, and that this needs exploring. It is appropriate for a parent to respond to the signal as such. But so concentrated and condensed is the significance of masturbation, that in *this* context only the most patient, delicate and permissive intervention is advisable. The child should be encouraged not to feel frightened, disgusted or ashamed of the activity. Instead, he should be encouraged to communicate freely about it, and, when he can, to attempt to explore his own feelings during the act. Thus he may begin to reassociate the fantasy with the rest of his experience, and in so doing to dissipate it. Even this communicative process should itself be carefully scrutinized, for talking about masturbation in an *apparently* communicative way may actually be a part of the family atmosphere, and hence of the fantasy itself. Moreover, owing to projection, well-meaning parents are liable to misinterpret, as masturbatory, incidental comfort movements of the child.

The child's experience may, however, be very different from this. In some homes, he can masturbate if he is secretive, but he can sense the uproar that would be aroused by the slightest overt reference to the act; here secretiveness is itself part of the family pattern coded into the fantasy. The child is thus induced to dissociate masturbation more than ever. Its effectiveness lies in the assumption that anything he enjoys doing is dangerous, while anything he does under threat (or compulsion or seduction) is approved. Masturbation, with the assistance of the fantasy, is felt to be done under threat, and therefore permissible (as is defecation in the presence of a threatening parent). But he must dissociate hard if he is not to encounter a further perplexity. For his parents may disapprove of masturbation too, as a consequence of their *superego* (p. 241), transmitted along with, but in opposition to, the id. In such families, the child is implicitly allowed to keep his secret, by a sort of conspiracy of silence. In later life, when the masturbatory activities have been transferred to sexual behaviour with a partner, this will lead to such complications as a secretive sex life (or rather pseudosex life) with clandestine lovers or mistresses, often dissociated from an overt one with a spouse (analogous to defecation in the *right* place)—and hence to all the pathological contortions of scandal and blackmail.

In other families, the child is found masturbating, and shown in no uncertain terms that this last resort is closed. Bramwell (1903) relates

a horrifying case in which (with the approval and condonation of Victorian society) a little girl, said to be a compulsive addict to this wicked and dirty sin, was kept watched all day and tied up all night to cure her of her wicked ways. Similar but less drastic treatment even nowadays may take the form of outbursts of fury, beatings or threats that the act will lead to horrible diseases. When masturbation itself is blocked in this way, the whole masturbation fantasy may be dissociated from the act of masturbation. In later life, this may lead to total overt celibacy: there are individuals who not only have no overt sexual relationships but do not masturbate either. The result now depends on the details of the fantasy and the identifications it may enshrine. The individual himself may be the main sufferer; such sufferings have been powerfully drawn in Anatole France's portrait (in his novel *Thaïs*) of the hermit Paphnuce. But others too may be involved. Once the fantasy has been dissociated from masturbation (and thus from later overt sexual activity), it permeates behaviour with the greater thoroughness, and may become proconscious. If the fantasy involved torture of others by the subject, the result may be a Torquemada; if it took an extreme destructive form (such as coupling with a corpse) the result may be a Hitler. In general, the superego-id conflict will be retransmitted to others in the usual way (pp. 126, 242).

Further complications arise at puberty, and at this point the paths of boys and girls may diverge. For at this point begin ejaculation and menstruation. The object that aroused threat in parents suddenly appears in the bed in the new form of semen or menstrual flow (easily associated with urine and faeces), and this linkage may be confirmed by a similar attitude on the parent's part. For the boy, this apparition is the result of his own masturbatory act (though it may also appear after sleep, as a result of a 'wet dream'—the phrase is reminiscent of 'bed-wetting'). He is therefore in danger of unrepressing his anxiety. He will avert this by redoubled condensation and dissociation (including a concern to ejaculate in the 'right place') and the final clinching of his fantasy.

For the girl, the apparition seems outside her own control. In pseudosexual activity, therefore, men are liable to take the initiative and perform appetitive behaviour for releasing stimuli, while women are liable to be more reactive, and submit to the caprices of others; though this difference is far from universal. Women can express appeasement by having painful menstrual flows; thus it comes about that more women than men can dispense with overt pseudosexual activity (Kinsey *et al.*,

1953). The so-called fluctuations of sex drive in some women with the phases of the menstrual cycle may be seen as a rise in the urge to appease through overt sexuality just before menstruation (when they can appease without such activity). Behavioural breakdowns at the menopause may likewise be seen as due to failure in the appeasement mechanism. None of these phenomena have anything to do with real sex.

We may eventually have to distinguish the concept of a *menstruation fantasy*, and apply to it an analysis as thorough as that we have tried to make of the masturbation fantasy. Both will be important in both men and women, if only because a mother can transmit fantasies to a son, and a father to a daughter. But here we mention this only as a pointer for future research, and in what follows we shall speak only of masturbatory activity and the masturbation fantasy.

Pseudosex in Adolescence and Adult Life

With the coming of adolescence, real sexual behaviour should mature along with organized intelligence. There is a complete pseudosexual parody of this. In adolescence, the individual must deploy the behavioural apparatus, acquired in his childhood, in the wider social world. In so far as the sex hormones still have a maturing function (p. 268), the awakening of the sex drive itself takes place in strange conditions. It is as though a printing process now takes place—but from a terribly corrupt and erratic proof. What matures may now be not sex itself, but the whole linked complex of pseudosex, ready for expression in the adult world. The period of adolescence is critical, but few adolescents are treated as if it were. Stigmatized as bobby-soxers or teddy-boys,* they are expected (as one wag put it) to behave like adults and be treated like children. Their gaucheries and experiments may be received with derision or disapproval. It is in far from propitious circumstances that the transition

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* If they were more articulate, they might retort with a term such as '*mean*-ager'. The present generations of adolescents are beset by two special problems. First, opportunities of real advancement, though more widely spread, seem much more remote in time than they did to the adolescents of a few decades ago. Nobody can expect to be Prime Minister at twenty-four (like Pitt) in an age when 'a young statesman' means one under sixty. Second, like women, they are sitting targets for big advertising campaigns, and the teen-ager group was originally defined as a market: they are thus exposed to massive hypnotic assaults which (on both women and teen-agers) act to oppose the effects of recent emancipation.

takes place which fixes their automatic behaviour for the rest of their life.

Some double-think is introduced into one component of pseudosex by a change, roughly coincident with adolescence, in the social aspects of the lavatory. In early childhood a scene of special parental pressure, in later childhood and adolescence the lavatory is, in many homes, the one place where the individual can literally lock out his parents. It therefore now appears the only avenue of escape from stressful social situations. One patient had a violent quarrel with her mother on the occasion of her engagement party, and took refuge in the lavatory. But we shall not here pursue this interesting complication, beyond noting that not a few adolescents and adults masturbate in the lavatory, and that public lavatories for either sex are notorious rendezvous for pseudosexual activities between adults.

In adolescence, the masturbation fantasy takes final form, and with it all the identifications and transferences that make up the instinctive part of the individual's behaviour. Every aspect of life will be governed by the details of the masturbation fantasy, but it is expressed most directly in overt sexual relationships. Exploration for a mate with whom the individual can enjoy himself is now replaced by appetitive behaviour for situations which will release the masturbatory mechanisms. Both the releasing stimuli and the modes of behaviour may be proconscious or unconscious. There is the literal kind we know as *perversion*. The individual looks for books or films with big-breasted women (supernormal stimuli!) or episodes of torture or any of the other varieties of releasing stimulus; he looks for a partner with whom he can act out the explicit details of the fantasy. Commercial organizations arise to meet this demand —-most straightforwardly, organized vice and pornography. Many books, magazines, plays, films, etc., serve to meet the masturbatory demand in a less overt way. In some circumstances there is little disguise about this. Soldiers on service in remote places may openly masturbate during or just after the showing of films which fit their fantasies. But usually all these perverse pseudosexual activities are *rationalized as having something to do with sex.* Many actors and actresses who conform to some masturbatory requirement (such as cruelty or submissiveness) are described as sexy, when one look at their expressions and postures is enough to convince any sophisticated person of their extreme unsexiness. Real sexiness is an expression of the capacity for evolutionary change and rich variety of mood and instant responsiveness to the mood of a partner; the quality

is usually found on stage or screen only in those who are fine actors or actresses (such as Leslie Howard or Greta Garbo). Such people can express supreme self-assurance, and the capacity for great enjoyment of life.

Films which purvey pseudosex may purvey, along with it, rationalizations, moralizations and sentimentality. The acting out of fantasies in implicit ways may bring us nearer to the original childhood situation. A man may beat his girl: this is an overt perversion. But he may woundingly criticize her, or express aggression in countless indirect ways. Mates are not always chosen for their readiness to join in acting out overt perversions. Rather, their whole behaviour may be complementary to that which is merely condensed in the individual's masturbation fantasy, which may have become unconscious. From now on there follows the chain of selection, projection and infection which we have discussed in general in earlier chapters.

In the acts of love-making and intercourse, sexual and pseudosexual activity differ profoundly. The free mutual response of sexual intercourse can never be mistaken for the automatic posturings of pseudosex, however ritualized into elaborate techniques of seduction. But the differences are subtle and difficult to describe for anyone who is not an experienced self-observer and a gifted speaker. Hence the readiness with which the manifestations of sex and pseudosex are confused, when both take the form of overt intercourse with a heterosexual partner. True, many Don Juans (seducing males) are almost literally impotent (e.g., ejaculating immediately after entry), while many nymphomaniacs are totally frigid. But a certain literal performance may be unaccompanied by any emotional response whatever to the partner. (The male ejaculation means nothing sexual as such; he can have one without a woman at all—men, animals, or his own hands are adequate substitutes.) For such a person, the sexual act has become, not a social response to another individual, but a means for securing a release from bodily tension and discomfort—the repressed emerging again. The partner is now merely an instrument for his own convenience, though one which has to be coaxed into service by seductive techniques. The point is skilfully brought out in Robert Graves's novel, *Claudius the God*. The Emperor Claudius is being persuaded by his wife Messalina to let her sleep alone (really in order to permit her nymphomanic orgies, though he does not know this). She wins her point, and then proceeds to plan his own behaviour for him. She will not tolerate his having love affairs—for then he might slip from her exploitive grasp:

'I think I should go mad with jealousy', as she puts it. She suggests that he should from time to time sleep with a pretty slave, with whom he would not be emotionally involved. 'We'd merely think of it', she says, 'as a measure that you had taken for the sake of your health—like a purge or an emetic'. This is what parental exploitation can make of the human sexual relationship! In the socially ritualized marriage, such a mutual pawing may be moralized or sentimentalized in various ways. One assumption is that the dirty act should stop altogether between spouses (except for procreation) as soon as possible after the honeymoon. Another is that the woman will be only too glad to dispense with it (compare the complication of the menstrual flow, p. 281—the 'curse', as it is called), while the man proceeds to do his dirty work outside the home and in complete dissociation from it. Sometimes both spouses may take this line. In some couples, there is further repression, and they cling together without any overt sexual activity anywhere. To all such confused and unhappy couples children may be born.

The work of Kinsey and his collaborators, expressed in their remarkable reports (e.g., 1948) has had a beneficial effect in lifting some of the secondary conspiracies of silence in our societies. But so much pseudosexual activity occurs in man that we cannot expect such catalogues of overt behaviour to tell us anything about real sex, and the reports are valuable only if this is taken into account. As an instance of a pseudosexual activity so widespread as to be regarded by Kinsey and his associates as sexually 'normal', we may take the occurrence of *convulsions* at orgasm. We now know that convulsions in lower animals are associated with situations in which emergency drives are very strongly aroused but blocked from full expression (Chance, 1957*a*). The occurrence of convulsions at orgasm in man and several lower animal species can be seen as a special consequence of the F.A.M. system (p. 201), natural in the latter and induced in the former as an aspect of pseudosex. The temporary reduction of one drive in the complex gives rise to a sudden outburst of activity on the part of the other two, hitherto suppressed by courtship or its masturbatory equivalent. In the lower animal species, the occurrence of the convulsion when fear and rage are freed from suppression may be designed to ensure that the partners do not attack each other at this juncture (contrast the three-spined stickleback, in which such attacks are actually useful—p. 203). Kinsey and his associates (1953) noticed several other indices of the presence of rage and fear in what they supposed to be human sexual activity. Epileptic convulsions in man (when not

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solely due to brain damage) may be accompanied by processes remin-
iscent of masturbation. The fit may be induced by key stimuli, and the
subject may deliberately induce it in private by exposing himself to
these. Epileptic convulsion may perhaps be seen as a mode of appeasement
dissociated from overt masturbation—possibly as a result of violent punish-
ment for the latter activity; but this subject deserves further study.
Suffice it to say that there is no trace of fear, rage or convulsion in or
after real sexual intercourse in man, except in so far as it is contaminated
with pseudosexual elements.

The final stamping of the masturbation fantasy may or may not be
shaped by some particular experience in adolescence, which suddenly
provides a unifying theme for all the fantasies and identifications, and
can thus set the course of the individual's life as an adult. There are many
examples—such as Charles XII's obsession with the career of Alexander
the Great, which he tried to repeat. But the finest instance has been un-
earthed by Kortlandt (1955) from a certain biography. The biographer
gives a first-hand eye-witness account of the reactions of his hero (whom
he knew personally) as an adolescent, immediately after a performance of
Wagner's opera *Rienzi*. This opera ends with the tribune cursing and
devoting to destruction the ungrateful city of Rome, which he has
ruined by his own policies. His last words are: ' "Damned and exter-
minated be this town! Decay and perish, Rome! Such is the will of your
people!" and then Rienzi perishes in his palace amidst the flames of
burning Rome.' The account that follows is fascinating. The subject of
the biography had totally dissociated his fantasies from overt sex (he
was probably celibate all his life), but they were now to receive their final
form. He was silent and preoccupied. 'He looked almost sinister, and
paler than ever.' There followed an impressive scene, as the youth, who
had hitherto envisaged several different professional careers, announced
his determination to be a great leader of his people. They parted at the
biographer's house, but the youth turned, not towards his home, but
towards the hills outside the town. ' "Where are you going now?" I
asked him, surprised. He replied briefly, "I want to be alone".' These
quotations are from Kortlandt's translation, and since he deserves the
credit for this find, it seems a shame to spoil the reaction of potential
readers to a surprise which he has most dramatically prepared for them
in his paper. But the story loses all its point unless we identify its subject,
who was later to be widely known as Adolf Hitler.

Pseudosexual Symbolization

All competitive and exploitive relations in the family come to be symbolized in grotesque bodily terms (p. 271), as the rationalizations of pseudosex develop. We may now glance at the curious way in which these fantasies represent processes in the child's own brain.

Hostile attitudes in the parents involve a drastic reduction in the amount of real communication that takes place in either direction between them and the child. Since the latter is growing into a specifically communicative animal, and since so much depends on a correct appreciation of his needs by the parent, this lack of communication will be felt as a distressing *loneliness*. The child may partially repress this feeling by the rationalization that when his parents are physically present they are really communicating fully with him, and that this communication is broken off only when they are physically absent.

Thus arises *separation* anxiety—alarm and distress every time the parents go away. (In fact, if parents are fully communicative when in the presence of their children, the latter are in no way put out by reasonable periods of physical separation.) The anxiety repressed by this secondary symptom returns in an extreme possessiveness, really a reaction to the possessiveness of the parent. In so far as he is exploitive, the parent aims at complete control over the child; he seeks to reduce the child to the status of part of his own body. The child may accept this attempt and meet it half-way, for he now confuses communication with complete fusion. He feels he can only escape from loneliness by a complete surrender of his own personality to the parent, the loss of all separate identity, and in short literal *identification* with the parent. This may be expressed in such fantasies as that of being eaten by mother and 'returning' in this way to the womb. Conversely, the child may think of himself as having swallowed a parent (p. 276) and of being entirely controlled by that parent from within. By such weird fantasies he rationalizes the process of *introjection*—the complete confusion between the external inputs from parents and the internal inputs which signal the child's own feelings. Introjection is clearly the counterpart of projection.

The whole complex of fantasies so generated can ultimately be traced to exploitive attitudes on the parent's part, which are projected on to the child, and accepted by him as his own. Thus a woman may feel that she is being exploited by the child she suckles or even by the foetus

in her womb—a fantastic enough projection. As instances of this, we may look at some special fantasy formations.

We may again consider the two siblings we met in Chapter 5 (p. 265) as dupes of the policy of 'divide and rule'. We shall call them Sister and Brother. In Sister's first analytic session, she was chewing a pencil. She said that the bits of wood would turn into worms inside her and eat her up; they would pass out as faeces, which would be eaten by a hungry jackal, and so on (rather in the manner of the song about Ilkley Moor). This theme dominated the analysis of both children; it is found in some form in most of us. Exploitation is expressed in terms of eating, emotional exploitation as being eaten up by that which one had swallowed—the parents' projection of exploitation is accepted, but the repressed returns in the fantasy of being eaten up from inside. On another occasion, Sister referred to a certain birth-mark on her abdomen as a punishment for taking food from mother. She drew a diagram showing the foetus inside the mother stealing the mother's food supply as it passed through; this, she felt, would make the mother hostile and threatening. In a second diagram, she depicted worms inside herself behaving in the same manner as the original foetus. She was, then, ready to re-project, on to an as yet imaginary foetus of her own in the future, the exploitiveness which her mother had projected on to her. She was terrified of sexual activity, for she felt this would result in her pregnancy, and hence in her being devoured from inside. She could thus represent the process of repressing reactions to a hostile sexual partner, only to suffer from them later. Brother, also being analysed, produced similar exploitation fantasies. He said he felt obliged to take either his mother's or his father's side in family disputes (cf. p. 255), for he had to have someone to feed him. He wished that human young, 'like flies, could learn to eat on their own while still in the egg'. He then expressed strong disgust feelings about internal parasites. He felt he had one eating him up. He supposed that he had eaten his mother up when in the womb by draining her blood. During the session when these fantasies emerged, the intelligent little boy (aged about eleven) suddenly remarked, as a deduction of his own, 'Oh, I see, is *that* why Sister didn't want to grow up and have babies!'

We may now fill in some of the background. The children's mother was severely disturbed over matters of feeding and exploitation. (Notice that the interaction described on p. 255 was in a context of food—'coming to have tea'). She had been unable to breast-feed the children, and felt profoundly guilty about it (cf. on another patient, p. 224).

But *her* problems in turn can be traced to *her* mother ('Grandmother', as we shall call her), and if we must stop there it is only a measure of our ignorance of still earlier family history. The mother's earliest recollection was of being told the following by Grandmother: that Grandmother had experienced great pain and distress when feeding mother as a baby; and that Grandmother, when pregnant with mother, had *tried to abort her*, but failed. The fantasies of the children were therefore determined in fine detail through a chain of family transmission, expressed at each link in a social situation.

We may now consider how the children envisaged the activity of their own brains. Sister conceived of her brain as in several separate parts. She drew two pictures of this. In one the parts were firmly stuck together; she felt that such a brain could not be controlled by another person. It was like children sticking together to resist parental domination. But in the second picture all the parts were split, and clearly separated by intervals. This split mind, said Sister, also makes it difficult for the 'enemy' to gain control: 'if you don't have control, all the little parts of you don't feel hurt'. These pictures clearly represent the position of the two siblings in the family (cf. p. 265). In the second picture, the policy of divide and rule was accepted on a fallacious assumption that splitting is safer: this splitting, in the individual brain, clearly means *dissociation*. Brother's picture of his brain was more elaborate—a fort-like system with outer defences, passages, multiple entries and emergency exits; it was so planned that each section could be cut off from the others by pressing a button, like the compartments of a ship's hold. Dissociation is here again, but in a different way. The fortress had an elaborate organization, and included dungeons for the torture of prisoners. This boy was beginning to evolve a coherent fantasy world, reminiscent of more than one paranoid story of Kafka. He was under a more severe stress than Sister (who was, incidentally, forbidden to comfort him when he was attacked by a parent). If Sister's picture represented a simple dissociation, Brother's expressed an organized network of proconscious rationalizations—an elaborate *defence* system, which gives some point to this term. In each case, the mode of function was designed to prevent hostile parents from acquiring control over their behaviour. Sister assumed that, if one readily dissociated one's different moods, parental influences felt in one mood would not be effective in another. This amounts to assuming that repression means real elimination, and overlooks the return of the repressed and relinkage of fantasies in condensed form. It exposes

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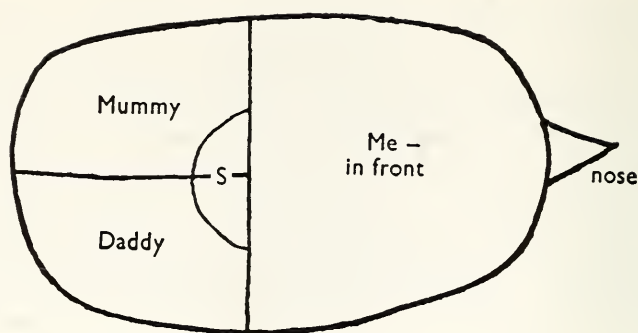
FIGURE 28—SOCIAL RELATIONSHIPS AND A FANTASY ABOUT THE BRAIN
(This illustration was kindly supplied by Mrs C. S. S. Nicholson)
This is a faithful copy of a picture drawn in an analytic session by a highly intelligent
13-year-old boy. He described it as the way he 'envisioned' his own brain. The
labelling is unchanged except for the section marked 'S' (for 'sister'), which he
himself marked with the initial letter of his sister's name.
    The fantasy expresses an aspect of the social relations within the boy's family—
that each of his parents influenced him both directly and by means of his sister. There
were abundant independent grounds for supposing that this was in fact the case.

the child to the very influences she seeks to avoid, like the policy of the
boy who tried not to observe his mother (p. 227).
    The many entrances and exits in these systems may be seen as groups
of behavioural inputs and outputs. The split would be made between
moods, each reflecting a particular constellation of input-output re-
lations, as in the instinct system of animals. Ways into the system in one
mood would, the child hoped, not be open in another. But of course
these behavioural inputs take place just the same, and more effectively,
through the process of incidental conditioning. The input and output
stations were envisaged in the fantasies as anatomical apertures in the
body itself; the boy's drawing looked rather like a sketch of sections
of intestine. Control of output by the parent (acting through an input)
is then expressed in terms of literal entry: the parent forces a way in
through mouth or vagina, and can then control movements out of
the exits from inside. In one fantasy, Sister supposed that at her last
breast-feed her mother had transferred a piece of herself, which was
now controlling Sister's behaviour from within. She once dreamed of
finding some pencil sharpeners, and giving them to some children.
She associated this dream with her father's penis, and went on to speak
of the insides of penises. (Her mother was continually projecting pseudo-
sexual impulses on to the girl, which she was already beginning to act

out by being provocative to men. Her preoccupation with her father's penis was an appeasement of her mother, cf. p. 292.) She now went on to say that her mother could control a situation from inside, like a worm in an apple, and that she (mother) would control Brother's sex life by looking through the passage of his penis, putting out her hand to stop him ejaculating; 'she will' (continued Sister) 'do the same with *mine*'. (She was, in fantasy, providing herself with a penis, to make herself a more effective instrument for her mother.) All passages, she continued, are 'a way in for the enemy' as well as 'a way out for hostility'. After our discussion of the defecation and feeding situations (p. 274 ff.), it is easy to see how these fantasies arise in contexts where the intake of food or discharge of faeces are associated with parental control and threat, with the working out of appeasement measures, and with the confusion of internal bodily matters with external hostile social relations.

Other children express social relationships in similarly bizarre terms. One boy produced a picture of his own brain, redrawn in *Fig.* 28. This figure represented his perception of the fact that his sister was used by both his parents as an instrument for hostile indirect influence over himself.

When the faeces are removed, the threatening parent is also apparently removed (p. 276): parent can therefore become confused with faeces. Thus parents can be fantasied to be within the body, and hence within the brain. The child's mental world is soon well populated. The two parents may be fused or strictly dissociated, and aspects of their behaviour may be dissociated from each other. Faeces are sometimes sources of parental threat, and sometimes means to parental approval (p. 275). They can thus be associated either with threatening or approving parents (which does *not* mean co-operative ones—p. 213). From the child's point of view, (reflecting the reaction of the parent), faeces are thus 'good' or 'bad'. In the child's fantasy world there may be good (=approving) mothers and bad (=threatening or destructively critical) mothers, good fathers and bad fathers, and so forth. By such strange fantasies of introjection (p. 287) the occurrence of identifications is primitively rationalized. Some therapists have succumbed to the temptation of taking all these fantasies seriously as explanations. The resulting notion of therapy is to induce the individual to rearrange this inner society, elevating its good members and placating its bad ones. In this way rationalizations can be positively promoted. This is a further development from Freud's unfortunate notion that some kinds of identification (e.g., of a boy with

his father) were desirable and healthy—as if any irrational compulsion could possibly be so. Deliberate, rational selection of certain behaviour of a parent as a model, to be verified and discarded if later found inappropriate, is quite another matter; but this, unfortunately, is not what Freud meant. It may or may not ever be desirable to 'adjust' people by rearranging their fantasies in culturally more acceptable but equally irrational ways; but it would be misleading to describe such a process as therapy.

The Pseudosexual Use of Children in the Family Triangle

One parent can use a child against the other in many ways (cf. Chapter 5). All these may, however, be condensed into pseudosexual exploitation— the fixation of a boy or girl on his or her father or mother. There are two aspects of this process. A parent who seeks to exploit a child will seek to fixate this child on him- or herself. But, having done so, the parent may cause the child to become pseudosexually involved with the other parent, as a means of indirect seduction. These involvements may take many forms. One parent may strive to resist pseudosexual exploitation by the other, by substituting their child. In the plot of *The Marriage of Figaro*, Bartolo and Marcellina are really the parents of Figaro, though none of the three know this at first. Until the revelation, Bartolo spends most of his time trying to force Figaro to marry Marcellina. More straightforward is the story of Salome. On behalf of her mother, she is to seduce her step-father Antipas by her provocative dancing—that is, by providing releasing stimuli for his masturbatory fantasies. He is forced to promise anything in return, and Salome, on her mother's instructions, asks for the head of John the Baptist. The story is quite possibly true—the Herod family were notorious for acting out. The real objective is thinly disguised—it is the head of Antipas himself that Salome's mother (Herodias) was really after. His consent to the execution would symbolize his complete surrender of power. In one family we have studied, a daughter was used against father in this general way by mother, and it is interesting that she adopted identical tactics—she would extract from father a blank cheque promise, and then forward her mother's demands. All this was largely unconscious on the part of all three.

We may now return to the Sister of the last section. After the associations to the pencil-sharpener dream (p. 290), and some interpretations

of them, she made the following remark: 'I don't really want Daddy, he is not attractive to me. I feel I must want him . . . so as not to hurt his feelings . . . because it is something Mummy wants me to do . . . it gives her a hold on me.' She then realized that she did not want, either, the promiscuous relationships with men which she was beginning to indulge. She was pleased and relieved at these discoveries, and summarized her session as follows: there was one layer of fantasy, that she had no sexual wishes at all (as an adolescent, she should have been beginning to explore for real sexual relationship if undisturbed), and another that she wanted all men at all times, including her own father. One layer represented an abandonment of her own wishes, the other layer an assumption of those of her mother. On a later occasion, she remarked that she had feelings only of disgust if she thought about her parents in a sexual context, and that wanting them was only a pretence to please them and thus appease their already existing hostility.

Children are prone to believe that they really want their parents sexually, and this belief is encouraged by countless hints from the parents. The rationalization was accepted by Freud (not as a rationalization but as the truth), and dignified with the title of *Oedipus Complex*. It is a commentary on the effect of his work that children nowadays are regularly surprised and delighted when they discover the illusory nature of their Oedipal feelings. But of course Freud was lifting one layer of secondary repression. Once the notion of the Oedipus Complex is fairly stated, its biological absurdity is soon obvious. His work was thus a necessary first step in association (cf. also Chapter 8).

We may now look at a more extreme case. The patient was a girl of about thirteen, whose parents were separated; she was living with her mother. Shortly after the separation, the girl produced a fantasy that a disguised enemy was telephoning the analyst with the object of luring her into some trap. Alternatively, the person telephoning might perhaps be being made to do this by some third party, the real villain. The girl associated to this fantasy the notion that her father might lure her mother out in this way; thus she implied that there was no hostility on her *mother's* part.

The analyst knew that the mother had in fact telephoned her husband, using a disguised and seductive voice, in the hope of discovering what he was doing. It seems that the girl did not know about this. The mother had also reported to the analyst fantasies of her own that her husband was conspiring with others to injure her (the mother). Finally, the mother

had sometimes used the girl as a bait to induce the father to come to the telephone, when she (mother) would speak to him herself.

Soon after this session, the question arose of the girl's going off to the country for a week to stay with friends. Her mother sanctioned this, and had made arrangements to go away herself somewhere else, but the girl was sulky and stubborn and refused to go. The analyst was at first surprised, because visits such as this were the only reliefs the child had from a stressful life, and she much enjoyed them. The mother was in fact highly ambivalent about her daughter's departure, and inclined to prefer that the girl should stay by herself for a week, on grounds of expense. The girl could therefore appease her mother (who was liable not only to threaten her but to attack her physically) by feeling impelled not to go, for the mother could then rationalize her anxiety about the expense as 'not being coercive'. But there was more to the girl's refusal. 'A difficult session finally revealed the following: the girl did not want to go because she suspected that her mother's motive was to get her out of the way so that she could then, without the girl's knowing, get in touch with the father. This the girl felt would be terrible. After analysis of yet more resistance she said she felt it would be terrible because they would conspire against her. She made a diagram to show how her mother agrees unconsciously with her father, though pretending not to and attacking him.'

The analyst later discovered from the mother that there had been a violent row that morning, in which the mother stormed at the girl for being like her father, 'and the girl seemed distracted'. It was, in fact, the mother's practice to do this habitually; she projected all her husband's real or fantasied characteristics on to the girl. During the session that day (the same as the above-mentioned), the girl played at being a seductive show girl. In later sessions, she revealed that this role was that of 'Daddy's fancy lady', the lady she felt he wanted her to be. Her mother had talked of feeling like a gangster's moll *vis-à-vis* the father, and the father had sent the girl a coat for her birthday, designed for a full-grown woman. The girl had written back a charming and pathetic little letter explaining that the coat did not fit her 'because I have no busoms' (*sic*). Thus the girl, attacked by her mother as an appendage of her father (i.e., as being like him) had appeased both her parents by providing exactly what they both expected of her—that is, by playing the delinquent prostitute. Without analysis, she might well have ended up playing the role in earnest.

Specific Linkages

The masturbation fantasy can take many forms. The differences between these seem to depend on the order in which the various drives are linked, and on which of them (other than sex itself) occupies a leading place in the complex. Thus sadistic fantasies are expressions of fury and dominance, while masochistic ones express exploitation through submission (cf. p. 229). Once the individual has identified,* he is concerned with exploiting others in the way he was himself exploited. He now seeks to provide himself with a partner who will provide the 'right' releasing stimuli for his automatisms—who will, in general, masturbate him (even if this takes the form of overt intercourse). This end may be achieved by involving the partner in the seducer's own masturbation fantasy, by discovering the *partner's* masturbation fantasy and working on that to seduce him or her. *Seduction* means securing an instrument for one's masturbatory impulses by arousing the victim's own.

Linkages may arise between pseudosex and the exploratory and communicative drives themselves. Thus arise 'sexual curiosity' and exhibitionism. Any social exploration on the child's part is liable to be interpreted by the parents as pseudosexual, and any attempts at communicating feelings are likely to be treated as exhibitionistic. (The literal form of the exhibitionist fantasy is that of exhibiting the genitals to another person, as a stimulus for the latter's masturbatory mechanisms.) Freud uncovered these linkages too, but accepted them as natural and inherent, using the rationalization that all exploratory behaviour was really motivated by sexual curiosity, and all communicative arts by exhibitionistic impulses. In fact, the linkages are perversions, first projected and then induced by the parents.

Superego, Id and Censorship

We have already defined the id as pseudosex with its rationalizations. Id behaviour is essentially the search for pseudosexual releasing stimuli, and the attempt to signal these to others. In contrast, the superego (cf. p. 280) is a secondary layer of prohibitions imposed on the id. Superego

* The intransitive use of this verb (= 'to undergo an identification with one or both parents') is a necessary convenience, and will often recur. In case readers still find it unfamiliar, we refer them back to the account of identification in Chapter 4 (p. 229 ff.; see also p. 258 ff.).

behaviour is concerned with *avoiding* the releasing stimuli for the id—just like the behaviour of the pigeon which avoided the entrance to the spiral (p. 70). At the sociological level, prohibitionist behaviour is concerned not really with eliminating a delinquent activity, but with *keeping it out of sight*, and hence removing temptation (e.g. keeping prostitutes *off the streets*). The superego and id cannot in principle or practice be divorced. They are the two pincers of pseudosex. We have seen, many times, how they are always transmitted together (pp. 126, 280, especially p. 241). Both alike are implacably opposed to real sexual behaviour; and in combination they are deadly. It is always the combination of a harshly moralistic family or institution (superego) and a pimp, or group of pimps (id), which drives a girl into organized prostitution: the two influences are complementary. There is always a close relation between superego and id even within the individual masturbation fantasy; for some purposes we may regard them as competitive and exploitive aspects respectively. In sociological combination, they issue in crime. The classical instance, of course, is that of prohibitionism in the United States earlier in the present century, with its outcome in bootlegging and organized violence. It has not been unknown in some contexts for representatives of superego and id literally to collaborate in securing legislation.* In general, we may regard the superego as a device for crushing sexuality, co-operation and communication, and the id as a device for perverting them into pseudosex, exploitation and deception. With sufficient dissociation, the two aspects can be represented at highest pitch in a single individual: typical of this was Major Weir of Edinburgh, the pillar of the Kirk and the chief of the Scottish warlocks.

There is naturally a specially close relation between the superego and *censorship*, and it is the communication of pseudosex which is especially censored. Of course this soon becomes a particularly effective means of censoring *real* sexuality. The more pseudosex is censored, the more widely it is projected, and to the Puritan all things are impure. The supreme example is the famous Mr Bowdler, who gave his name to a

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* We know so little about human behaviour that it is a relief to find one well-established empirical principle. If there is one that has almost the force of a law in physics, it is the association between prohibition and dangerous crime. If you want blackmail and extortion, prohibit homosexuality between consenting adults; if you want flourishing vice gangs, prohibit prostitution (and, if you want to make things really tough for the police, drive the prostitutes off the streets and the vice gangs underground); if you want gangsterism on a grand scale, prohibit alcohol; and if you want the gangsters and their successors to stay in business when alcohol-prohibition is over, prohibit gambling. It works like a charm.

term which one of us once rendered, by a revealing Freudian slip, as *bawdlerization*. Since the superego is itself pseudosexual, it is always a means for enabling *some* aspects of pseudosex to be expressed proconsciously in moralized form. In any superego censorship, the thoroughly prurient and obscene always slips through in sentimentalized form: it is any constructive reference to real sex that is invariably blue-pencilled. Comedy too is liable to suffer, for the art of comedy is to expose instinctive mechanisms and rationalizations and dissociations for what they are (cf. p. 424), and one tried method of doing this is Euclid's *reductio ad absurdum*—taking a fantasy explicitly to its logical and absurd conclusion; this does not suit puritan censors. In recent times, this sort of censorship has been applied especially to films, and we have ample opportunities for exploring its quirks, by comparison with the books or stage shows from which films are adapted. Sometimes (as in the case of *Kiss Me Kate*) an admirably entertaining stage show is almost totally ruined in this way. It will be evident that censorship of this kind is implacably hostile to the arts, which have flourished most when it was least in evidence. This has a curious consequence. In both individual and culture, when the ban on the id aspects of pseudosex is lifted, much creative communication becomes possible which would otherwise have been blocked. Since the creative imagination is unblocked *together with* pathological material, it becomes possible (as Freud did) to suppose that the two things were linked all the time.

It will be evident that sociological censorship is usually a means of straightforward overt exploitation. It is interesting here to notice a subtle change in European cultural mechanisms after about the sixteenth century, a change that reached its culmination in Victorian sentimentality and censorship (though it was already in evidence when trousers were painted on Michelangelo's nudes). It is interesting to speculate how much this was connected with the publication of *The Prince*, in which Machiavelli let so many cats out of the bag. Certainly political manoeuvres began to be more moralized and sentimentalized after this shocking revelation. Music is of all the arts the least readily subject to censorship, and of all the arts music has perhaps reached greatest heights since the sixteenth century: but even Mozart and Verdi encountered problems of censorship in the dangerously verbal context of opera. The position in the present century is much more complex, and we shall not attempt to explore it in this book.

Phalluses and Fallacies

Around the penis a crowd of pseudosexual fantasies assemble. In this crude key stimulus world it is all too readily confused both with the breast and with a piece of faeces. We shall concentrate largely on the pseudosexual fantasies of boys. As the organ used in masturbation, the penis seems the key to all that masturbation entails. It is seen, not as the main executive organ of male sexual behaviour, but as the main instrument of appeasement, and hence the only talisman against depression. The capacity to ward off depression can virtually replace exploratory ability as a source of (obviously false) self-esteem, and the penis can come to symbolize a distorted form of intelligence. This confusion becomes important in connexion with, for instance, intelligence testing. One of Mrs Nicholson's boy patients reported that at his school the boys regularly discussed the relative *sizes* of their penises as a symbol of dominance *status*. (In real sexuality, the only things that matter about a penis are its capacity to erect fully and its subsequent sensitiveness and mobility; but in the fantasy world of man size can be as important a key stimulus property as in the instinct world of the guppy—*Fig.* 12, p. 77.) Heated disputes about relative intelligence usually disguise disputes about penis size or anatomical potency, and underlying these in turn are disputes about the capacity to exploit. Once identification is complete (and as we have seen, it may click into place in adolescence), the false self-esteem of avoiding depression turns on the capacity to seduce and exploit others.

Total removal of self-esteem is thus symbolized by castration (which in these contexts means removal of the penis, and not the mode of birth control practised by Roman ladies with good-looking slaves). The individual who has fully identified has fully lost his capacity for sexual enjoyment and feels already castrated. On top of this pretence, he pretends to have acquired a new penis—the instrument of exploitation. He is in an underlying state of total depression, awareness of which he only wards off by exploiting others.* The slightest expression of real sexual enjoyment on their part arouses in him a fierce competitive envy. Such a person is always emotionally impotent (even if capable of anatomical erection, and of ejaculation timed by technique) and bitterly resents the real potency of others. In this context we can re-phrase an aphorism mentioned earlier (p. 144): Violence is the last refuge of the impotent.

* 'Why this is hell. . . .'—see again Appendix 10, p. 472.

But such a man will continually assert his potency in the distorted sense of his capacity to seduce and exploit. He is afraid, not of castration, but of becoming aware that he is already emotionally castrated.

For the man who has not wholly identified, and who can still enjoy himself sexually, his penis will come to symbolize his intelligence and capacity for general enjoyment. Such a man will express his terror of envy—that is, of having his self-esteem shattered and depression inflicted— as a fear of the fate of Abelard (p. 176). The penis is the anatomical means of some of the most subtle and sensitive responsive sensory relations between two people. It may come equally to stand for (an appropriate phrase) the capacity for communicative relationship with other people. Thus we have two symbolic penises—that representing intelligence, and that representing pseudosexual exploitation. The seducer type will feel triumphant if he arouses another person's pseudosexual mechanisms —hence the expression to 'get a rise' out of someone. The simplest way to cramp another person's sexual enjoyment is to arouse their mastur-bation fantasies.

The ambiguous nature of pseudosex underlies all attitudes to the penis. Appeasement in the toilet training context was effected by detach-ing and abandoning the faeces (whose *size* might seem important). There is therefore some confusion over the issue of pseudosexual appease-ment: is it to be effected by sacrificing the penis or by using it? The prob-lem can be pathologically resolved by complete identification with the parent, who is now ever-present, and the attempt to sacrifice others.

The heroes of *The Thousand Nights and One Night* are always addressing their penises as if these were separate individuals. Among the thousand names and one name with which the penis is endowed in these stories, that of 'the child' is one of the more popular. The relationships between the individual and a parent may be converted into fantasy relations between himself and his penis. The underlying fantasy assumes that he is now merely an appendage or instrument of his parent, but deputes this role to his own penis. (It may also seem to represent the permanent possession, under his own control, of a breast that was once so capricious and elusive.) In masturbation, the individual may in some cases attack his own penis, handling it roughly or otherwise abusing it, as though he were a parent forcing a child to appease him. One boy patient used to hang towels of increasing weight on his penis (on much the same prin-ciple applied by the patient who made his dog take bigger and bigger jumps—p. 244). When this quasi-relationship is transferred to an overt

sexual relationship with a partner, she in her turn may figure as the child, and anatomical impotence may result if she will not oblige by close conformity with the man's masturbatory requirements. For she is now supposed to be a mere appendage of his body.*

On another level, the penis represents the child being used as an instrument of seduction (like Salome) by one parent against the other. When this role, too, is transferred to the partner, a conflict arises. On one hand there is an inclination to use her for the exploitation of other men, on the other hand, a terror of her falling under their control (a sort of castration), for then the weapon, in other hands, can be used against the former 'owner'. Hence the upheavals of pseudosexual *jealousy*, which underlies all jealousy (p. 162) as pseudosex underlies all competitive-exploitive relationships—for pseudosexual fixation is the supreme means of obtaining an exploitee. The jealous tyrants of literature, such as Othello and King Mark, start with a sense of castration and impotence. They employ other men (Cassio, Tristram) to woo their women (Desdemona, Iseult), but then become jealous lest these more attractive males will be able to use the women against them. In the *crime passionnel*, the partner is killed out of envy, the rival out of jealousy (cf. p. 165).

A woman can easily acquire a fantasy of having been castrated. If her mother or father require a boy for their fantasies, they will necessarily see her as a castrated, imperfect creature, and they can transmit to her this distorted view of herself. Any behavioural differences between men and women, other than those strictly and immediately related to anatomical difference, can be ascribed to the pseudosexual developments of a particular culture. The absence of any other *fundamental* differences in behaviour has been fully demonstrated by Mead (1950), who has shown that every piece of behaviour described by the naïve as specific to one sex can be observed, in some culture or other, in the opposite sex (for instance, in some cultures it is specifically men who are vain, coquettish and preoccupied with clothes).† In our own European cultures and

* In the Morning Room of Berkeley Castle in Gloucestershire, there is a fine wooden chest (pictured in the guide-book to the Castle), with carvings of one female and two male figures. The genitals of each are replaced by human faces, a striking illustration of the fact that fantasies about parts of the body often refer to separate human individuals used as agents (cf. also p. 311).

† There is a wide-spread fallacy that men and women differ genetically in respect of, for example, intelligence. As long as boys and girls are brought up differentially, no evidences of *overt* difference can be accepted as evidence for this hypothesis, and in fact the work of Mead provides the strongest possible reason to dismiss it. A little additional comment may,

their off-shoots, the general pattern has always been one in which women were relegated to the role of exploitees—like children. Both children and (until very recently) women have usually been unable to own and administer property on their own account. Thus a medieval feudal potentate could control the marriages of heiresses to estates owing allegiance to himself, in order to ensure that the property fell into the hands of a man loyal to himself (cf. Scott's *Quentin Durward*). It is on

however, be useful. *A priori*, no biologist would regard such a genetically determined differ-ence as in the least likely. The establishment of genetic sex differences within a species is a formidably difficult task in evolution. Despite the extreme disadvantage of sterile mixtures, only the most complex animal groups have achieved the accurate genetic determination of even sex itself. (Even in man, individuals of mixed sex still occasionally appear, and we can trace the evolutionary steps by which genetic sex determination has gradually become more precise.) The difficulty becomes even greater where differential behaviour is concerned. (Within the instinct system in lower animals, differences of the crudest kind are only secured by a physiological device. Here each individual regularly has the mechanisms for all kinds of behaviour, 'male' and 'female'. In some birds, the two sexes behave almost identically even in the context of copulation, so that only half the copulatory acts are fertile. More commonly, a female (e.g.) is restricted to the 'female' behaviour (characteristic for the species) by hormonal switch mechanisms which are more easily genetically determined; she may show some of the male acts as displacement activities. Similar switch mechanisms enable males and females to employ comparable powers of exploration in different instinctive contexts.)

Where the complex mechanisms of intelligence are concerned, a genetically determined sex difference would be exceedingly difficult to bring about, so this could only have arisen, if at all, under a very powerful pressure of natural selection. Such a pressure is unimaginable, for an obvious reason. Where intelligence is concerned, division of labour does not apply. From their nature, high levels of all intelligence factors must be advantageous in every conceivable situation. In no situation could it be advantageous for women, for example, to be less intelligent than men, i.e., to be less intelligent than they could be, given the capacities of the species as a whole. (Cf. Russell, 1952; 1959 *b*; in press, *a*; and cf. p. 227.)

There is a striking analogy between the treatment of women by men, slaves or serfs or other under-privileged drudges by their masters, and savages by conquerors from more complex cultures. In all three instances, the use of a group of human beings as drudges has been rationalized by the assertion of their *genetic* inferiority. (All three fantasies were carried to their extremes by the Nazis; see also on the authoritarian pattern, p. 329 ff.). Little oppor-tunity has been given them to disprove the rationalization. Imagine Shakespeare, Mozart and Darwin brought up as (*a*) women of their periods and classes, (*b*) slaves or serfs, or (*c*) Masai warriors or Apache braves. Could we seriously expect *Hamlet*, *Don Giovanni* or *The Origin of Species*?

Finally, since we shall be discussing the exploitation of women in Europe, it is important to notice that in the complex cultures of India and China, which failed to evolve a systematic science (see Chapter 10), the exploitation of women has been far *more* intense and consistent than in the successful cultures of Europe.

women that the id is commonly projected, and men have sought to control them, as tools, property and weapons, in relationships with other men. At Rome, it was essential for a man of ability to marry into one of a few families, none of whose males were particularly distinguished (Syme, 1939). Even today a man can sue another man for alienating his wife's affections, and the courts will compute what she was financially worth to him. The education of boys and girls has always differed profoundly. The English public schools typify the difference between boys—brought up in conditions of hardship—and girls—taught to arrange flowers and potter about domestic affairs. The man has been trained to repress his awareness of discomfort, and the woman to be pre-occupied with matters of comfort to the exclusion of all other things. This has profoundly affected the distribution of great overt creative effort. Men without wealth and status have often achieved great things, but on one of two conditions. Either, like Freud, they had women to minister to their every comfort, and did not have to give the matter a moment's thought, or, like Beethoven, they ruined their health and died before their time. Women have been further handicapped. They have, on the whole, looked after their own comfort better (this may be one reason why they tend to live longer), but they have been trained and expected to devote most of their effort to their husband's comfort (including his masturbatory comfort). Sheer considerations of time have prevented the appearance of many women of creative achievement until recent times. Fortuitous absolution from these menial tasks has accounted for most of the *known* women of genius. Elizabeth I was a queen, with other women to look after her household. Florence Nightingale, for most of her life, was a couch-ridden invalid, whom nobody could expect to do any housework. *She* made *men* work for her like slaves! (Strachey, 1918). Elizabeth Barrett Browning was another invalid. In the exploitive relationship between men and women which culture tends to make of marriage, the men are usually expected to provide the money—that is, protection from threatening danger (p. 275); it is in this context simply the modern version of fighting. The overt exploitation of women has had dire consequences, and most of the cultural emanations of pseudosex can be traced to it. Women have been able to use their masturbatory function as a bargaining-point for covert exploitation; above all, women have sought to exploit by using their children. It was for Jocasta's exploitive advantage that Oedipus slew her husband and ruled Thebes (cf. Chapter 8).

Beyond a brief glance in Chapter 10, it is with the European cultures

and their off-shoots that we deal almost exclusively in this book. The restriction is important. Even such apparently diverse representatives as the fifth-century Athenians, the Icelanders of 1100 A.D., the Russians of the modern Soviet Union, the Boers in the nineteenth and the Brazilians of Bahia in the seventeenth century, have far more in common with each other than with cultures of non-European origin; from these they can be shown, by enumeration of cultural characteristics, to differ profoundly in a variety of ways (Murdock, 1957). Freud asserted that the Oedipus Complex (p. 293) was universal in man. The most cogent criticism of Freud's theories made in his life-time was that of the anthropologist Malinovsky (1927), who pointed out that the Oedipal fantasies in Freudian form might be peculiar to the special marital and parental organization of European cultures. Freud's assertion that the Oedipus Complex was universal, and inherent in the nature of man, typifies his acceptance at their face value of the symbols of infantile rationalization. Throughout this book, we have adopted the central principle that *no symbol should ever be accepted as other than an attempt to represent or misrepresent what was originally a set of social situations and relationships.* Those who use this principle can never rest content with any kind of rationalization or moralization, but are forced to pursue their inquiries ever further. A related approach is curiously important even in the study of lower animal behaviour. In attempting to analyse instinctive mechanisms within a single individual animal, one is driven into circular and sterile arguments, which are always in practice resolved as soon as questions are asked about social interactions. That this is so is a consequence of tendencies just as irrational, (if less transparent), as those of the children's drawings which people the individual's brain with the leading actors in his environment (*Fig.* 28, p. 290).

Comfort, Pseudosex and Cruelty

From the outset, attempts by the child to relieve his own discomfort are liable to be interpreted (by projection) as expressions of pseudosexual interest, and hence as attempts to seduce the parents.

> *Speak roughly to your little boy,*
> *And beat him when he sneezes;*
> *He only does it to annoy,*
> *Because he knows it teases.*

Moreover, all parental hostility is expressed by inflicting discomfort on the child in his first months of life. This has at least two important consequences, as bodily discomfort begins to be woven into the fabric of pseudosex.

In exploring his own body with his hands the child is liable to encounter dirt, and his natural reaction will be a form of disgust, not distressing in itself unless his parents fail to clean him properly. (This tactile disgust may later become merged with other reactions, such as that to distasteful food in the mouth, as in fantasies of eating faeces.) But this may be confused with exploring the moods of parents, and especially their hostility. There is therefore a special connexion between the repression of disgust due to skin discomfort and the repression of hostile parental attitudes. The group of rationalizations relating the two are those of *sentimentality*. Repression of skin discomfort leads to inadequate washing and to dirtiness, and dirtiness is often (though not invariably) associated with sentimentality. Through involvements with the anal region, male homosexuality may come into the story. Overt anal intercourse (with men or women) is only possible if tactile disgust is repressed, and the same must be true of taste disgust in other pseudo-sexual practices. In the person who has not fully identified, sentimentality arouses acute nausea—the sensation it is designed to repress. One can experience a mild form of this reaction while looking at the portraits of James I in the National Portrait Galleries of London or Edinburgh. The reaction is not simply to his overt homosexuality, for one has no such response to a picture of Oscar Wilde. James combined a degree of dirtiness unusual for his period with a sentimentality (in love-letters to his boy-friends) of exceptional viscosity (cf. Chapter 9).

Thus disgust becomes a reaction to the behaviour of another person, instead of a report on the state of one's own body, and it may then be covered by sentimentality. When the parent sees a dirty child, this is not simply a signal for cleaning him, but is taken as an indication (by projection) of nasty hostility on the child's part, and it may be treated as such.

With identification and the maturation of pseudosex, if the comfort drives are strategically placed in the complex, they may reappear in the form of *cruelty*. Every form of torture is a ritualized and exaggerated version of some discomfort imposed on babies (hot objects, uncomfortable postures and so forth). Cruelty is the urge to impose on others (as though a condition for one's own comfort) intense forms of

discomfort amounting to agonizing pain. It may take a central place in some masturbation fantasies, where it constitutes the extreme forms of sadism and masochism. In a similar way, predominance of fury in the complex may lead to intense destructiveness, also as a supposed condition for the destroyer's own comfort. 'For like the hectic in my blood he rages', says Claudius, and plans to be 'cured' by arranging for Hamlet's murder. The cruel and destructive suppose that they can only escape from the discomforts of their childhood by maintaining their identifications *à l'outrance*—that is, by violently asserting their own location in the parent role, through the infliction on others, in greatly exaggerated form, of what they once experienced from hostile parents.

Addiction and Phobia

Pseudosex is associated with extreme ambivalence (p. 174), since every positive and negative drive is enlisted together in the complex. Attempts are made to re-split this into the mechanisms of *addiction* and *phobia*. In relation to some persons, situations or objects the negative drives are repressed, resulting in an overriding attraction, while in relation to others the positive drives are repressed, causing an irresistible repulsion: we have already seen how this split is transmitted (p. 259). (In speaking of addiction, we are concerned here only with behavioural factors. Where the object of addiction is a drug, such as alcohol or cocaine, the behavioural symptoms may be reinforced by physiological changes, as the systems of physiological regulation become specialized to allow for large doses of a substance normally toxic in large quantities.) In both addiction and phobia, the repressed drives may return. In animal phobias, for instance, there is often a fear that the animal will approach and touch the individual, even though this is entirely contrary to its normal behaviour; this is a projection of an impulse on the individual's part to come into contact with the animal. Similarly, height phobias are often associated with the impulse to fling oneself from a height. In such addictions as that to alcohol, the repressed phobic component may return with redoubled violence when the object of addiction is withheld. Thus alcoholics suffer from horrific hallucinations of objects or situations which are the object of their phobias (e.g., of animals such as rats or spiders). Addiction and phobia are always secondary dissociations from a starting-point in childhood relations with *two* hostile parents (cf. p. 256).

The Addiction Object Game

Few things are more tragic and distressing than a mutual addictive relationship between two people who would not naturally choose to have a sexual relationship. They cannot enjoy themselves, they experience every kind of mutually inflicted unhappiness, the mutual phobic element will always make itself felt, and they will end by transmitting the whole system to their children. A marriage of this kind may break up when one partner has found a substitute addiction object. More rarely, a person may succeed in genuinely withdrawing from such an addictive relationship without first obtaining a surrogate. Such a person may exhibit severe withdrawal symptoms, comparable to those of an alcoholic or drug addict when his poison is withheld. (That addiction may occur to objects rather than people, and to activities other than social ones, is a consequence of the key stimulus properties of pseudosexual releasing mechanisms.) Such a person should receive every sympathy and encouragement. In present cultural conditions he is more likely to be exposed to cultural destructive criticism and the extreme distress of the divorce courts (which can be mitigated, but never wholly neutralized, by the humanity of individuals administering the laws).

The whole addiction complex may be covered by superego compulsions—elaborate precautions against being seduced, which entail also a total suppression of real sexual arousal. Thus arises the ultra-respectable marriage—the mating of a pigeon who is always avoiding the entrance! (p. 70).

The third branch of human addictive misery is the game of seduction, which may be called the *addiction object game*. It turns on the principle that the addict can be exploited, and the addictor can exploit. It is assumed that one can only be in the one position or the other, and every attempt will be made, in this discordant version of musical chairs, to get and keep the role of addictor, or addiction object. The Don Juan and the nymphomaniac feel that they can only protect themselves from seduction by endlessly seducing others. (But cf. p. 341.)

Like so much else in pseudosex, the mechanism may begin to tick over in the toilet training situation. The child may confuse this with experiences at the breast. In the one context, he had no control over the object he required to satisfy his needs, and could be made to feel in the addict position. (It is thus that parents begin to addict the child, and alcoholism is a peculiarly obvious expression of this.) But now here are

the parents apparently clamouring for his faeces! That they are really trying to make him *do* something, the child may not grasp. He will be only too ready to believe that he can supply a desperate demand, and thus at last occupy a better bargaining position. The Don Juan who addicts a girl, and then feels free to leave, is like a child who supposes that he has removed the threatening parent by playing on an addiction. From such rationalizations, there are two alternative issues. Either the fantasy of being an addiction object is expressed quite unrealistically (the person who fancies himself more in demand than he actually is, who always pretends to be busy and is never on time at appointments), or the game is played in deadly earnest between two people. It is the game of 'hard to get', grimly illustrated in the work of such novelists as Constant and Stendhal—above all, in Stendhal's *Le Rouge et le Noir*. In this game, each 'lover' in turn desperately conceals an addictive passion under a mask of cold indifference, bringing the other grovelling to his or her feet, only to find the process reversed if he or she now shows the least response. A more ghastly travesty of love it would be hard to find. Yet many people seriously imagine that this is what love is (including Stendhal himself, as appears from his text-book on Love. His hero, Julien Sorel, was Stendhal's ideal image (p. 230); he never tires of expressing admiration of Julien, and was a very indifferent seducer himself). Merimée, too, pursued the theme in several stories, and above all in *Carmen*. In *Carmen Jones*, the film based on Bizet's opera, Hammerstein sums up in his version of Carmen's habanera:

> *You go for me, and I'm taboo;*
> *But if you're hard to get I go for you.*

And when she gets him, she warns, he will be through. And the refrain is 'Dat's love'!

As more people enter the story, the addiction object game undergoes wearisome complications. There is, for instance, the threesome with A addicted on B and B addicted on C, as in *As You Like It*. Racine especially excelled in weaving, as in his *Andromaque*, whole webs and loops of hopeless addictive sequence. Unattractive as a man (he was an indefatigable seducer when it suited his career and a complacent moralist when it did not), Racine was the specialist poet of pseudosex, and it was fitting that a line of his should appear at the head of this chapter.

From time to time, more or less comprehensive handbooks of seduction have been prepared for those engaged in this desolate game. Most

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of the techniques of seduction have been considered in a general way in Chapter 3, and we need not enlarge on them here. The most complete and coherent of the handbooks was composed in verse by the Latin poet Ovid; its argument has been concisely and explicitly summarized in a speech by the central character of Rex Warner's novel *The Aerodrome*, which might serve as an extended commentary on our *Fig.* 24C2 (p. 157).

From its key stimulus nature, it follows that pseudosexual activity is essentially promiscuous. 'You know what he does', says Don Giovanni's valet in the opera, 'with anything in a skirt'. Cole Porter's lyrics from *Kiss Me Kate* wittily repeat the theme, as when Petruchio sings:

> *If her knees, now and then, should knock,*
> *If her eyes were a wee bit crossed,*
> *Were she wearing the hair she'd lost,*
> *Still the damsel I'll make my dame,*
> *In the dark they are all the same. . . .*

'I'm a maid mad to marry', says Bianca, 'And will take double quick Any Tom, Dick or Harry, any Tom, Harry or Dick'.

The addictive version of pseudosex, equally instinctive, may be compared with the results of the familiarization processes of instinctive pairing in animals (p. 204—note especially Morris's definition). Promiscuous pseudosexual activity is rationalized as sexual; pseudosexual addiction is rationalized (always on one side, and often on both) as love. Catullus declared that he simultaneously loved and hated his mistress: when we recognize the misleading usage of the word 'love' (equally ambiguous in Latin), we can see this as an accurate statement of the combined phobia and addiction which make up ambivalence. Real love, of course, can never be combined with hate. (In the process of psychoanalysis, a patient may develop either an addictive or a phobic attitude to the analyst. These so-called positive and negative transferences should be interpreted as such. The former must not be confused with manifestations of genuine trust in the analyst. Both kinds of transference can only hamper the analysis, and should be kept to a minimum by vigilant interpretation.)

When a person has become completely addicted on another, he is ripe for every kind of exploitation. If he now shows signs of overcoming his addiction, the exploiter will try to trigger a phobic reaction and use it for his own purposes, as the drug peddler may resort to blackmail or threats of violence (compare Catherine de Medici, p. 226). This is the

pseudosexual expression of envy (p. 159). The phobia may be used to drag back the escaping addict, by creating and maintaining situations of real or fantasied danger in which the exploiter will seem an indispensable protector (cf. *Animal Farm*, p. 160, and Appendix 13, p. 484). Or there may be direct threat, as illustrated in Marlowe's *Faustus*. Once the doctor has signed the contract, any later hesitations are met by threats that devils will tear him in pieces and destroy body as well as soul.

Homosexuality and Inversion

The subject of homosexuality and inversion is a large one, on which we can touch only briefly here. Homosexuality, in fantasy or acted out, is the performance of pseudosexual activity with a partner of the same sex. This behaviour is less varied than that which may be performed with a partner of opposite sex only in so far as anatomical differences constitute absolute limits. Inversion is the performance of pseudosexual activity with a partner of either sex but in the role of the opposite sex. Even in overt sexual activity itself, inversion can be defined only with reference to a particular culture. In fantasy a man can suppose himself to be a woman, and vice versa, but in fact a man is incapable of the only universally feminine behaviour, and vice versa (cf. p. 300). Such details are rendered less important by the key stimulus properties of masturbatory releasing mechanisms, for which an anus may pass as a vagina, and a Lesbian's artificial equipment as a penis. Whether an individual sees him- or herself as a man or a woman will make a considerable difference within the stereotyped background of a given culture. But the more fundamental mechanism is that of homosexuality. (In most lower animals, all the anatomically possible behaviour patterns of both sexes are commonly present in every individual of either sex. There is no need for the chromosomes determining sex to waste valuable coding space on specifying the details, for the differentiated hormonal mechanisms of the two sexes can determine which behaviour is actually exhibited in each individual; the mechanisms corresponding to the opposite sex may then be used as convenient displacement activities—Beach, 1942, 1948; Russell, 1952; Bastock *et al.*, 1953; Morris, 1952, 1955*b*.)

Many kinds of parental influence may contribute to setting up homosexuality or inversion. The most obvious is the case where both parents were impelled to have a boy, and had a girl, or vice versa (it is well

known that Oscar Wilde's mother 'wanted' a daughter); parents often signal their intentions for the child by providing a name of ambiguous gender. The child will oblige with the required appeasement in due course. More subtle are the various conflicting plans of exploitation which the parents can make. For instance, a mother may (like Herodias) compulsively want her daughter to seduce the father on her behalf, or to have an exclusive pseudosexual relationship with herself. If a parent tries to fixate a child on himself, but will not overtly sanction this, he may contrive to make the child celibate so far as his own (the parent's) sex is concerned, or, alternatively, promiscuous; for example a man who goes to prostitutes is true to his mother in his own fashion (p. 175). This may also accord with plans in which the child is to seduce the *other* parent.★ A child is usually exposed to both parents, so unless their plans coincide perfectly he is liable to be left with a dissociated conflict. In general, exclusive homosexuality (many people are overtly ambisexual) is the result of an absolute compulsion to fear and avoid members of the opposite sex in a sexual context, as dangerous and seductive objects of addiction. In other words, there may be an addiction-phobia split between the sexes, and for the homosexual the opposite sex is the phobic one.

The position may be complicated by the presence in the parents of fantasies of inversion. Thus a mother may have fantasies in which she plays the part of a male, and may train her son to the complementary role of a girl. This is the origin of a fantasy (in the son) of a mother equipped with a phallus—a fantasy produced as an appeasement in reaction to her demands. Such a fantasy will result in male homosexuality. The boy will be unable to disentangle his rationalizations, for his fixation is on a non-existent parent—a parent playing at being of opposite sex.

★ One possible factor may be the particular use made of the child against the other parent, interacting with the sexes of all three. There are eight possible situations on the simplest assumptions, four of which would tend towards making a child homosexual, as follows:

1   Father uses son to seduce, exploit, keep mother.
2   Father uses daughter to seduce, exploit, keep mother.
3   Mother uses son to seduce, exploit, keep father.
4   Mother uses daughter to seduce, exploit, keep father.
5   Father uses son to attack, compete with, drive away mother.
6   Father uses daughter to attack, compete with, drive away mother.
7   Mother uses son to attack, compete with, drive away father.
8   Mother uses daughter to attack, compete with, drive away father.

Situations 1, 4, 6, 7 would lead to heterosexual (pseudosexual) behaviour, situations 2, 3, 5, 8 to homosexual behaviour. As indicated in the text, many further complications must be added to such a scheme.

This fantasy may be checked by a complementary one imposed by the father; it is therefore not surprising that overt exclusive male homosexuals are often brought up in exclusively feminine households by mothers and/or aunts. The phallic mother may stand in fantasy for a mother acting out hostility through a human instrument (cf. p. 300)—the culturally characteristic feminine exploitation by means of children. Other objects, such as articles of clothing, may in turn stand for the phallus. One of our patients was terrified as a child whenever her mother wore spectacles: this mother constantly used an elder sibling to harry her daughter.

The child's later pseudosexual development will also turn on the relative strength of his identifications with each parent. These in turn will be influenced in content by grandparental contests. Thus a man may identify with a man (his father) identified with a man (grandfather); with a man (father) identified with a woman (grandmother); with a woman (mother) identified with a woman (grandmother); with a woman (mother) identified with a man (grandfather); and so on. None of these identifications is in any way desirable (cf. p. 291), whether or not it leads to the particular automatism of exclusive overt homosexuality. Some of them cause addiction to the same sex and phobia of the opposite sex, some addiction to the opposite sex and phobia of the same sex. There is, of course, an asymmetry. Real sex is by its nature always heterosexual. Hence homosexuality is rather obviously pseudosexual, and correspondingly difficult to rationalize as a matter of real sex. (Attempts have indeed been made, as by Aristophanes in Plato's *Symposium*, but they are far-fetched in the extreme. In one of the tales of the *Thousand Nights and One Night*, poems are presented to state the rival claims of boys and girls as sexual objects for men; the heterosexual poets have a transparently easier brief.) But pseudosexual activity between persons of *opposite* sex, while precisely as instinctive, automatic and remote from real sexual relations, can far more easily pass muster in most cultures as an imitation of the real thing. The overt homosexual may then be treated as a very convenient scapegoat, *as though only he is perverted.*

The Three Masturbation Fantasies

We must finally qualify the notion of the masturbation fantasy itself.

Unless the parents' fantasies are exceptionally closely in accord, an individual is liable to be saddled with no less than *three* masturbation fantasies, which may either be rigidly dissociated or condensed into one. One of these is connected with identifications (direct or complementary) imposed by the mother, one with those imposed by the father, and the third with the appeasement *reactions* to both of the not-yet-identified individual. The two former will supply two different roles, and the individual may recoil from one to the other when unable to maintain the first (cf. p. 169). The third, or *reactive fantasy*, will entail irrational and compulsive acting-out when the relevant releasing stimuli are presented, but it will not, like the other two, entail the fundamental seduction of others. This third fantasy will be completely repressed, along with the individual's own personality and intelligence, once identification has taken place. The nature of the individual's personality or pseudo-personality, the readiness with which he will act out any given fantasy, the amount and nature of his proconscious behaviour, will all be determined by the relative importance and relationship of these three masses of originally dissociated material.

In adult life, relationship with people of one sex may be governed by one parental fantasy, and those with people of the other sex by that of the other parent. Rigorous attempts may be made to dissociate relationships with men from relationships with women. In ancient Athenian households a woman was not supposed to meet a man other than her husband or members of her family. In our modern cultures the same effect is partially achieved by the still considerable relegation of women to home and housekeeping, while the men get together over their work. Trouble may arise if the individual is forced to enter on a simultaneous relationship with a man and a woman, for then the plans of his parents may clash. Acting in accordance with one parental fantasy, he may throw his wife into the arms of another man (as a means of indirect exploitation and indirect homosexual relationship), only to meet the backfire from the other parental fantasy in an explosion of jealousy. When the two fantasies are brought together, the sparks fly off the eternal triangle.

Phases of Personality

> *Peer Gynt:* Who are you?
> *Voice of the Boyg:* Myself. Can you say as much?
> Henrik Ibsen (The Modern Library Translation)

The Problem of Classification

There are many ways (indeed an infinite number) of classifying human individuals. Yet in a sense no static classification is ever valid, if made in terms of personality; for 'one man in his life plays many parts' (cf. p. 158). If human individuals were automata pure and simple, the thing might be possible; but most of them are not. Nevertheless, we can think of an individual's personality as being in a certain *phase* or state, much as water can be ice or steam, and in classifying these phases we are on sure enough ground. Some individuals may remain in one particular phase for so much of their lives that they seem to conform almost perfectly to the *types* of the old morality plays; but even here we can never be sure that no circumstance would ever dislodge them. In what follows, we shall be forced (by sheer demands of presentation) to portray varying personality phases as if we were sketching individuals. We must therefore state at the outset that any one individual may, in the course of his life, conform to many of these types; and in so far as he is fully intelligent, he conforms to none. For the only rational classification of fully intelligent personalities would contain one category for each single one of them; and it is only in so far as humans display fantasy and automatism that we can envisage any simple, schematic study of personality.

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Cynicism and Idealism

Any classification of personality can begin with one major division—between the individual who has fully taken over his parents' identifications, and the individual who has not, but whose reactions to other people are still irrational. The creation of irrational automatism takes place in two stages. *In the first stage, the individual represses his parents' hostility, and sees himself as they saw him. In the second stage, the individual takes over the parental identifications completely; he now sees himself as his parents saw themselves, and he sees others as his parents saw him.* Individuals in the first phase tend to repress awareness of real hostile feelings on the part of others (and hence to act out for them); individuals in the second phase tend to project hostile feelings upon others whether those feelings are there or not. In the world as at present constituted, some people at some times are hostile, and some people at some times are not; so neither of the resulting views of the world, and neither of the modes of behaviour based on these, can possibly be rational. The first phase may be called that of *idealism*, and the *idealist* is one who always assumes that others are co-operative at least in intention. The second phase may be called *cynicism*, and the *cynic* always assumes that others are hostile. The two terms *roughly* correspond to the ordinary usage of everyday speech; they have nothing to do with the terms applied to ancient or modern philosophers (thus Plato was probably mainly a cynic in our behavioural terms).

We need not now discourse at length upon the characteristics of these two phases, for we have provided in earlier chapters adequate discussion of all the necessary concepts. The differences can therefore be reduced to a semi-tabular form:*

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* Readers of the book in MS. have pointed out to us an interesting feature of this table. They found that it fell roughly into two parts. The items in the first part could all be employed or verified in classifying their acquaintances, since the criteria could be based on everyday social observations. The items in the second part appeared more theoretical and dependent on our earlier arguments; but these, too, acquired force when something was known about the *parents* of the individuals to be classified. (Such information is usually not available in more superficial social contacts; thus an identification can only be observed directly if we see the behaviour of *both* people concerned.) It is interesting that the table contains both kinds of criterion; this was without deliberate intention on our part, for much of the theory concerned was developed from observations where *both* kinds of fact were available to us in equal or near-equal detail, together with facts about, for example, masturbation fantasies.

The Idealist

Repressed his parents' hostility, and accepted their view that he himself was hostile; he projected his co-operativeness on to his parents. He now projects his own co-operativeness on to others.

Has real self-confidence, but no real self-security; maintains a false self-security by supposing himself under the protection of another person, and may thus let himself be exploited by the latter.

Measures his success or failure by the extent to which he can satisfy an exploiter.

Is co-operative provided his false self-security is maintained.

Retains his own wishes, but is afraid to realize them to the full.

Lacks self-assurance.

Is afraid to be a leader.

Is afraid of identification.

Has not taken sides with one parent against the other to the extent of confusing his own identity with that of either parent.

Represses his own fear.

May murder for desperation or appeasement; also for revenge, but in doing so becomes a cynic.

Is destructively self-critical.

May be moralistic about himself.

The Cynic

In addition to this, actually became hostile himself; he repressed this, and now projects it on to others.

Has no real self-confidence; all his false self-esteem now depends on his capacity to injure the real self-confidence of others, and to exploit them.

Represses his conviction of inevitable failure, by substituting for real success the ability to exploit others.

Is competitively envious and exploitive.

Has totally substituted for his own wishes the fantasies projected on to him by his parents.

Displays false self-assurance.

Is concerned with dominance status.

Has identified.

Has taken sides with one parent, to the extent of confusing his own identity with that of this parent.

Represses his identification fury; may show secondary panic in face of the hostility he projects.

May murder for envy or jealousy.

Is destructively critical of others.

May be moralistic about others.

The Idealist

Is liable to depression.

Is liable to addiction.

Has a reactive masturbation fantasy, and will appease hostility by letting himself be seduced.

Can only enjoy himself, including sexually, when the conditions of his reactive masturbation fantasy are realized in the relationship in the person of a third party. In these conditions, can respond to his partner, and be even emotionally potent. In other words, can enjoy himself, and also be creative, only when maintaining false self-security.

Symbolizes by a fear of castration his fear of envy provoked in others by his own enjoyment.

Treats others as if they were himself as he was when a child.

Acts out from fear, as reaction to ambiguous leadership.

Keeps his identification at bay by projecting it: hence requires cynic to act parent role for him.

Has a sense of humour.

The Cynic

Seeks to depress others, being already fundamentally depressed.

Seeks to addict others, being already fundamentally addicted.

Has fully taken over a parental masturbation fantasy, and seeks to seduce others.

Cannot ever enjoy himself or be creative at all; can simulate potency if the conditions of the parental masturbation fantasy are satisfied—that is, if he has a particular exploitive relationship with his partner. Can never be emotionally potent.

Symbolizes by a fear of castration his fear of loss of status, ultimately a fear of *not* maintaining his identification.

Treats others as if they were himself *as he was seen by his parents* when a child.

Acts out from fury, as reaction to ambiguous dominance hierarchy.

Maintains his identification by projecting his parents' view of himself; hence requires idealist or complementary cynic to act this role.

Has no real sense of humour.

It will be evident that we have already often encountered the idealist and the cynic in this book—usually referred to previously as exploitee and exploiter. They have figured largely in the last four chapters, and the above list may serve to draw these threads together.

Guilt and Shame

We may further pin-point the difference between cynics and idealists by examining the concepts of *guilt* and *shame*. Consider the child who has been used by one parent against, for example, the other, who has thus been made to act out for somebody else. If he discovers this, his feeling is one of intense *humiliation*, a form of low self-esteem resulting from the discovery that one has acted like an automaton. The child may resist this painful realization; he is *ashamed* to recall how he has been used. As long as this shame persists, he will continue to permit himself to be so used, sooner than face the memory of his humiliation. This is a vicious circle: the longer he is used, the more ashamed he will be of realizing it. This mode of repression will be encouraged by the exploiting parent, who may accuse the child of having acted in a hostile manner *on his own initiative*, so making him feel *pseudo-guilty*. This rationalization will be accepted by the child, as a means of covering his shame (by implying that he was a free agent). Shame and pseudo-guilt are characteristic of the idealist.

Once the individual has identified, he will use others to act out for him, just as he himself was used. If he succeeds in this, he will feel a complex emotion which we call *triumph* (the word is suggested by the formal triumphs of Roman generals, in which their captives were led in chains). He may be aware of this emotion (though not of the fact that he is as much, or more, an automaton than his exploitee). Or he may cover it by feeling *guilt*. As long as he feels guilt, he is concerned with ascribing blame for past events, and will continue to use others to act out for him. If he manifests guilt to his exploitee, this will serve as a submissive gesture, under cover of which he can continue to exploit. But, in shifting the blame, he may pretend to himself or his exploitee, or both, that *he* has really been the exploited one (not by his parents in the past, which would be true, but by his present exploitee, which is false). He will then feel and express *pseudo-shame*. Guilt and pseudo-shame are characteristic of the cynic.

These distinctions are vitally important for therapeutic purposes. Incorrect diagnosis of one of these complex emotions will simply reinforce the pathology, in one direction or another according to the case. If we encourage the cynic to feel he is being exploited *now*, we only play into his rationalizations; we can only enable him to explore his *original* exploitation by his parents if we *first* show him how he has identified,

and how he is at present exploiting others. Conversely, if we encourage the pseudo-guilt of the idealist, by interpreting his behaviour as springing from exploitive motives, we only assist him to repress his humiliation. In a given instance, the two sets of emotions can be discriminated by careful examination of fine details of overt behaviour. And we must note that, through the mechanisms of pseudo-guilt and pseudo-shame, cynic and idealist will each tend to assume that he is in the other's role. It will also be evident that triumph, guilt and pseudo-shame are layers super-imposed upon original shame and humiliation. We must be careful in what order we remove these layers. Always, at the start of the whole process, lies intense humiliation at the hands of parents.

In exploitive relations between cynic and idealist, pseudo-shame and pseudo-guilt will be distributed between the two parties. The idealist will be made to feel pseudo-guilty *if he does what he himself wants* or *stops doing what the cynic enjoins*. Anyone who refuses to cater to the de-mands of an exploitive individual will be called (and may feel) 'selfish' (cf. p. 231), 'cruel' or 'heartless' (cf. p. 170).* An adult daughter, for instance, who refuses to spend her whole life being exploited as a nurse and slavey by a hypochondriac mother, may well feel, and will be encouraged to feel, pseudo-guilty. Cynics will always try to enlist public opinion in support of such projections. Conversely, a cynic may feel pseudo-shame if he can no longer exploit an idealist: he may regard it as a wounding insult to be firmly prevented from carrying out his exploitations. This is expressed in the Greek couplet:

> *And if you are not Queen, my dear,*
> *Think you that you are wronged?*

We are using the translation by Robert Graves employed in his novel

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* As illustration, we may cite the following extract of a letter from a mother to a son: 'The welfare of yourself and your family, in fact of me and each one of us, depends upon you. There is not time to argue, my dear son, and nothing that you could bring forward would alter my opinion; I simply look for this last proof of the love you have always shown me. You will hear from Campi that I am ill in bed, and your last letter has contributed not a little to unnerve me. Your persistent obstinacy will inevitably shorten my days, and yet it is in your power to give me life and happiness. . . .' (cited in Tschudi, transl. Cope, 1910). This letter might have been written by any one of many individuals today; in fact it was from Letitia Bonaparte (Napoleon's mother) to her son Lucien, urging him to divorce his wife, of whom he was fond, and accept one of the thrones at the Emperor's disposal. Letitia often wrote in this strain to her children, and generally got her own way (though happily not on this occasion). She tyrannized over her family's lives, amassed and hung on to a great deal of money, and lived to about ninety, surviving almost all her children.

I, Claudius, where, by a nice subtlety, we find the Emperor Tiberius addressing these lines to Agrippina (the Elder), whose only wish is to save her own and her children's lives from his suspicious hostility. Tiberius is really redirecting on to Agrippina an interpretation which would have fitted his own mother. By ascribing pseudo-shame to the idealist Agrippina, the cynic Emperor sought to induce, in her, feelings of pseudo-guilt. For the cynic will always project his own feelings on to the idealist, who will accept the misinterpretation. (The story, with the quotation, occurs in Suetonius's biography of the Emperor, and may be authentic.)

All these emotions only arise if the individual cannot rationalize his actions and those of others. The counterpart of guilt is moralism; that of pseudo-shame is the principle of 'honour'; but the idealist can be made the victim of both principles. The further procedures of an individual feeling any of these emotions will depend upon his attitude to these principles, and hence partly on the cultural environment. If feelings of guilt or shame, pseudo-guilt or pseudo-shame, are recognized as such and treated as signals that something is wrong with the individual's actions or with his acceptance of the actions of others, they may be turned to useful account. Otherwise, they will serve as a spur, not to behaving more rationally in future, but to finding more effective rationalizations. *A person who expresses guilt is to be regarded with vigilance.* His next move will probably be to engineer a situation in which he can repeat the activities (about which he expresses guilt), but this time with rationalizations and hence without guilt. He will therefore try to manipulate his victim into giving him a pretext. This behaviour pattern appears on the cultural level in the use of *agents provocateurs*.

The Idealist Phase

After this account of guilt and shame, and the catalogue of p. 315, it is hard not to feel that the idealist is much more sympathetic, human and likeable than the cynic. This is true in a sense, in so far as the idealist still has a personality of his own, however thwarted and crushed, and is at least not spontaneously anxious to exploit his fellows. At the same time, we must be very careful not to idealize the idealist, who can wreak considerable destruction through his proclivity to act out for others. There may be less irrationality to unravel in the idealist, but his behaviour, in so far as he is idealistic, is just as irrational as that of the cynic. The

free expression of an intelligent real personality is quite different from either the idealist or the cynic phase.*

Moreover, idealists are not living in a world made up only of their own type. It is obvious from the last section and from our tabular account that cynics and idealists fit together perfectly in the roles of exploiter and exploitee, knave and 'sucker'. (This highly condensed word gives the game away about the exploitiveness projected on to sucking infants—cf. p. 287). The idealist will believe all the deceptions of the cynic, for they perfectly fit his own fantasies; he is vulnerable to every one of the cynic's gambits. Any idealist is likely to end up as the instrument of a cynic, and he can then do serious damage to any third person whom the cynic seeks to attack or exploit indirectly. We have seen how Dostoievsky's colonel (p. 161), under the influence of Foma Fomitch, is prepared to injure his own children and the girl he loves. Excellent examples of such cynic-idealist combinations are provided in the imaginative but historically based novels of Robert Graves—for instance, the relationship of Germanicus (idealist) and Tiberius (cynic) in *I, Claudius*, and that of Belisarius (idealist) and Justinian (cynic) in *Count Belisarius*. In refusing to take on the leadership of his country, Belisarius is just as much responsible for the misfortunes of all his friends and the misgovernment of his country as was Justinian in maintaining his destructive domination. Cynics make use of idealists to establish a position and status they could otherwise not secure or not maintain. The idealist may have constructive and co-operative goals, but his contribution to the progress of man has

* This chapter is by far the most tentative and provisional part of the whole book. The subject could not be avoided, but it is one which requires far more precision than we have yet been able to achieve. One special ambiguity arises in our concept of 'idealist', which is really a double one. On the one hand, we have distinguished as *idealists* those individuals who are not wholly cynical (cf. p. 231), and who retain some degree of real intelligence and personality. But all these individuals suffer from a pathological pattern distinct from the cynic one, and this we have called the *idealist* pattern. It follows that the same term is sometimes used to mean the absence of a particular pathology, and sometimes the presence of a different one. (The tabulation on p. 315 ff. must be analysed with this in mind. For example, the presence of a real sense of humour is characteristic of idealists, defined as people who are not wholly cynics, and hence retain some intelligence. But fear of assuming leadership is a property of the idealist pattern, and clearly has nothing to do with intelligence.) We ask the reader to bear this in mind throughout the following sections; the context will usually make it clear which shade of the concept is in use. We have not thought it necessary to alter this part of our terminology, since the whole set of concepts will undoubtedly require much revision and refinement. This chapter, in short, is very much a starting-point, and is provided as such. But some clarity will begin to emerge on p. 347.

been largely neutralized by his unbounded capacity for being deceived, utilized and murdered by the cynic. Most political revolutions, starting with new social ideas, rapidly become struggles for power between cynics (cf. p. 131). The turning-point is regularly marked by a slaughter of idealists. Again and again in studying human history, we watch successive idealist groups—Theramenes in Athens, Cicero in Rome, the Girondins in France—plodding, with what seems in retrospect astounding blindness, towards the hemlock or the guillotine. One is constantly tempted to exclaim, like the legendary playgoer, 'Look out! He's going to murder you!' If the cynics have contributed countless crimes, the idealists have imparted innumerable follies to the record of human automatism. It is in combination that they create such havoc.

This cynic-idealist relationship appears in overt pseudosexual form in the combination of pimp and prostitute. Most of the latter start as idealists. The Harlot's Progress often occurs in three stages (cf. p. 296): destructive criticism by a moralistic family or family-surrogate, who project their own promiscuity on to the girl; her seduction by a Don Juan who purports to offer her love; her addiction to a pimp. Thus two kinds of cynic prepare the way for a third. The girl finally becomes a pliable instrument for the pimp's exploitive purposes, who will lie and steal for him at need, as well as practising her profession. Her pathetic dreams of eventual independence are rarely realized, since the pimp is always at hand to take all the money she 'earns'. If eventually she does go into business on her own account, she has usually become a cynic. The pimp occupies a rather central place in the story of human misery and waste, and this kind of relationship, dissociated from overt pseudo-sexual activity, deserves a much more protracted investigation than we can give it here.

The cynic can never be trusted, for he is always fundamentally hostile But it is also impossible to trust the extreme idealist, for whenever he is badly frightened he will throw those he loves to the cynic wolves, as substitutes for himself. (Cf. here the horrible denouement of Orwell's *1984*.) It is not uncommon for an extreme idealist to marry a paranoid cynic (cf. p. 353). The children of such a marriage can never rely on their idealist parent, nor can they ever convince him or her of the cynical nature of the other parent. In any crisis, the idealist parent will only say: 'Do what your mother [or father] tells you', 'Don't talk like that to your mother' (or father), 'Your mother [or father] really loves you', and so forth. Idealists, no less than cynics, are liable to use others, though there

is an important difference. The cynic may use a second person to act out hostility upon a third; the idealist may seek to *divert* the hostility of a second party from himself to a third. The two modes of behaviour may look superficially similar (cf. p. 341 ff.). Correspondingly, pseudo-sexual jealousy (p. 300) may take the two different forms, motivated respectively by hostility or fear.

There are, however, probably many sub-divisions of the idealist pattern, which we have not even begun to consider here. One important special case is that of the 'disillusioned' idealist, whose faith in the well-meaning-ness of everybody else has broken down. Such an idealist tends always to assume the worst, but in quite a different manner from the cynic. Whereas the cynic projects with a cavalier disregard for the actual personalities of those he meets, the disillusioned idealist picks up and amplifies the least trace of fantasy, even in people who would be the last to do him real harm. Such idealists have to be shown in a painstaking way the difference between fantasy and acting out on the part of others. If they are proved wrong, they are delighted and relieved, whereas a cynic would be furious.

Creative artists and scientists are usually thorough-going idealists, and even those who are largely cynical (p. 347) must be in the idealist (or of course a wholly intelligent) phase when they actually write, paint or compose well.

'Finally' (Russell and Russell, 1957), 'we must stress that in using these terms we are clearly concerned with cynicism or idealism about other people's *hostility*. The words, in common usage, are sometimes used with a different meaning. Thus fanatics are sometimes called 'idealists', but are invariably cynics; similarly, to the Puritan all things are impure. A final example will show that our sense of idealism is not incompatible with sexual aberration or with a superficial flippancy readily mistaken for cynicism, and it will also well illustrate the astonishing risks which the idealist is led to take through his stubborn refusal to face the hostility and cruelty of others. This final example is the extreme idealist Oscar Wilde. His libel suit against the Marquess of Queensberry, often cited as a case of quite inexplicable folly, was clearly the result of his failure to face this kind of fact.'

The Cynic Phase: Varieties of Emphasis

The cynic phase is not simple and uniform. Each cynic's pseudo-

personality and behaviour are governed by particular identifications with particular parents. But there are general patterns of relative emphasis, based upon three main factors, which may vary to some extent independently. First, there is the precise balance or pattern of drives in the pseudosex system, determined perhaps by the order in which successive displacement took place and the relative dominance of the different drives. Second, there is the relationship between the id and the superego superimposed upon it through punishment by parents for acting out their id for them (p. 241). Third, there is the distribution of direct and complementary roles: we shall leave this factor for the next section. All three factors may be traced to the original fantasies and behaviour of the parents, and the way these were expressed in relation to the bodily comfort of the child. Little or no attempt has yet been made to discover which conditions lead to which patterns of cynicism. In this chapter we must be even more descriptive than in the rest of the book, and remain content to indicate the lines on which future research may proceed.

Variations in the pattern of drives making up pseudosex (together with the extent to which this has been further dissociated from overt sexual activity—p. 281), must determine relative degrees of pre-occupation with, for instance, pseudosexual curiosity, exhibitionism, capacity to seduce, property, money, power, cruelty and destruction. If any one of these pre-occupations assumes overt proconscious control, the others will be repressed, to reappear as the *means* chosen to reach the prescribed *end*. (In a similar way, in some lower animals, two or more instinctive mechanisms may serve interchangeably as appetitive behaviour for each other's consummatory acts—Leyhausen, 1956.) Augustus, primarily concerned with power, would employ cruel and destructive methods to attain power; Torquemada would risk any destructive consequences and use every trick of power politics in order to exercise his passion for cruelty; Hitler would employ all the devices of *Machtpolitik* and all the horrors of the Gestapo to further his main objectives of genocide and universal destruction. Similarly, some seek power to obtain money, while others seek money to obtain power. We must be careful not to reduce all these varieties to manifestations of one of them, though we can safely define all in terms of the nuclear concept of competitive-exploitive relationship.

The superego-id balance is a more subtle matter. The distinction between the two can only be drawn in terms of a given culture, for the

superego means that part of pseudosex that can be moralized, and this will depend on the cultural climate (cf. p. 433). When the id is proconscious, we have the psychopathic criminal (p. 242). When the superego is proconscious, we have the *respectable* delinquent, who can rise much higher than the psychopath in the hierarchies of his culture; he shows a certain partial realism in the pursuit of his unrealistic ends— a restricted and dwarf intelligence, operating within the imaginative limits prescribed. This is the cynic who efficiently pursues money, for example, or power, protected from dangerous deviations by his own fundamental moralism. Augustus and Henry VII, for instance, took their moralism quite seriously (if with some dissociation). (The amoral ruler, like Julius Caesar, is fundamentally an idealist—and is liable, like him, to succumb to assassination as a result of his idealist behaviour.)

The superego-ridden form of cynicism thus has certain points of contact with the real world, aspects of which may be seen with as much accuracy as is permitted by the distorted goals. It thus interacts with the changes dictated by developments in technology, invention and cultural clash, and cynics of superego pattern may influence the course of historical events.

Assemblies of individuals of this kind come to be linked together in alliance as *power groups*, often operating far behind the scenes. It is with this in mind that we must view the more spectacular performances of rulers and notables. 'In all ages, whatever the form and name of government, be it monarchy, republic or democracy, an oligarchy lurks behind the façade' (Syme, 1939). Rulers are enlisted to further the commercial or prestige interests of the most efficient current power group—that is, the most up-to-date one, the one in quasi-realistic accord with the current necessities of technology and intercultural development. Revolutionary rulers, like Augustus or the Tudors, are put up and kept up to destroy a collapsing power group in favour of a new one. Such rulers remain rulers because they know just how far they can go, and never on any fundamental issue defy the interest of their subterranean supporters. The unearthing of these power groups from their obscurity can be a fascinating study. There is one condition, however, under which a ruler can get out of hand—namely when events *outside* his country or cultural grouping enable his own individual fantasies to 'come true' unexpectedly. Hitler was put into power by bankers and generals, who soon found him an unsatisfactory puppet. The generals were aiming at world domination, and not, like Hitler, at world destruction. In

1938 they saw their protégé about to jeopardize their cautious plans by operations against Czechoslovakia. In view of the substantial and efficient Czech army, the unimaginable irrationality of a failure on the Allies' part to intervene at this stage, and the relative unpreparedness of Germany, they assumed that this move would be disastrous. 'By the beginning of September', said the German general Halder after the war, 'we had taken the necessary steps to immunize Germany from this madman'. A Panzer division was detailed to overawe Berlin and remove the Nazi rulers. The Commander-in-Chief approved. (See Churchill, 1948; there is no reason to disbelieve this account, though we need not accept the high-minded motives assumed by Halder after the war.) All was ready for the coup, when its premises were shattered by the surprise of Munich, the outcome of irrationalities outside Germany. The power group now began to lose control to a new one which the Nazis had by this time indoctrinated; the final bomb plot came too late, and the architect Speer with difficulty saved a little of Germany from the final devastations planned by the new Rienzi in his bunker in Berlin (Trevor-Roper, 1952; his account is worth reading in parallel with Kortlandt's Rienzi story—p. 286). The Nazi power group itself, be it noted, was a superego system within Germany, but an id system for the world as a whole—it was eventually to be stigmatized as criminal at Nuremberg. The Nazis lost the war (through their enmity to modern science—p. 163), just as within a country an out-of-date power group will always succumb to its logical successor. What will happen in the future cannot be predicted so simply, for the co-operative, scientific strand in human evolution is coming more and more to challenge the power group structure of societies.

The diversity of cynic patterns leads to a corresponding diversity of hierarchical structure in society. There are hierarchies of dominance, and hierarchies of seduction. In principle, individuals can be ranked in terms of some more or less quasi-realistic estimate of power (Luce and Rogow, 1956; Dahl, 1957). But what exactly is the power of a film star, who supplies (as monarchs and nobles once did) an ideal image (p. 230) for the masses? In the interplay between individuals, it is important to determine whether one is dealing with someone concerned with quasi-real power hierarchies, or someone concerned with assuming a status he cannot possess—the seductive charlatan, the Cagliostro. The behaviour of the former is reliable and predictable once you can put a problem in terms of his power preoccupations. That of the latter is unreliable in

any sense, and he will become intensely envious of anyone who questions his bluff or resists his blandishments. But all these complications are matter for future research. Everything must depend in general on the extent and manner in which the proconscious pseudo-personality is integrated and organized to produce consistent behaviour; whether the cynic dissociates in chameleon fashion, or pursues in a coherent way his fundamentally unrealistic goals. But there are some special arrangements, which we shall now consider at greater length.

Complementary Roles: Sadomasochism

Identification with a parent may be direct or complementary (p. 229), and in any masturbation fantasy there are two roles (p. 312). In overt pseudosexual behaviour (*perversion*), one partner may occupy the *sadistic* role. This partner occupies an overtly dominant position, and inflicts on the other (according to the various pseudosexual patterns), physical pain, injury, masturbatory arousal or humiliation. The *masochist* occupies an overtly submissive role and endures these inflictions. In the actual practice of such perversions, each partner is proconsciously identified with his or her own role, and unconsciously with that of the other partner, his repressed ideal image. The whole pseudosex complex may become dissociated in various ways from overt sexual contexts, and this applies to sadomasochism. It may be unnecessary for explicit literal acting out of the fantasy to take place, if it is being acted out in a more fundamental way in the relationship—for instance, if one partner is in general dominant and hurts the other in various ways outside the sexual context. Sometimes there is outright reversal in the two contexts, as in a court case some years ago in which a wife gave evidence that her husband had forced her by threats to tie him up and beat him. Either explicit or implicit acting out must take place if the partners are to obtain that momentary relief from anxiety which in pseudosex takes the place of the real sexual orgasm..If one partner is 'unsatisfied' in this pathological sense, he or she will be overtly impotent or frigid.

In whatever way it comes to be dissociated from overt sexual acts, sadomasochism is a general feature of cynical relationships. The sadomasochistic balance in the cynic can easily be tipped. Every sadist is a potential masochist, and every masochist a potential sadist. The masochist is a sadist with the superimposed conviction that overt dominance is

dangerous or impossible; this role must then be experienced vicariously, by alliance with a sadist who will not only injure the masochist but also act out hostility for him against people outside the relationship. Sadists and masochists are equally concerned to exploit, the former overtly and directly, the latter covertly and indirectly, through overt submission. Individuals of either sex can play either role, but in many cultures the overt cultural exploitation of women (p. 302) has driven many of them into the masochistic role. This distribution has been rationalized by the notion that sadism is virile and masochism feminine—in fact, of course, sadism in a man is a sign of impotence, and masochism in a woman a sign of frigidity. Hence arise fantasies of cave-men and of women who like to be beaten by jealous 'lovers' (a contradiction in terms): these may be further disguised by sentimental fantasies of chivalrous knights and gentle maidens. As with all projections, it is easy to ensure, by bringing up boys and girls differentially, that many individuals conform to these types.

The sadist exploits by overt threat and explicit seduction, the masochist by appeasement and by making use of his own sufferings—for instance, by the demands that can be engineered by illness, real or pretended (always a gesture of submission—p. 144). When the relationships are moralized, the sadist plays Puritanical sermonizer, the masochist innocent injured martyr. A sadomasochistic couple will always combine in alliance to attack and exploit others around them. Roles may be reversed both in a couple and in the case of a separate individual. Sufficiently imposing threat will turn a sadist into a masochist; sufficiently permissive circumstances will turn a masochist into a sadist. The differentiating factor is secondary panic (p. 239). The masochist has identified with a submissive parent, and has taken over this parent's fear of the other parent, against whom the masochist is to act. Thus, for very different reasons from those of the idealist, the masochist also seeks a protector.

Some general points must be made very clear at this juncture. The really fundamental distinction is that between cynics and idealists, already outlined (p. 314). The idealist may show sadistic or masochistic activity as a form of *appeasement* if his reactive masturbation fantasy is arranged along these lines. But his sadism or masochism does not permeate his whole behaviour in the manner of a cynic who has identified with a parental role. As types of pseudo-personality, the nouns 'sadist' and 'masochist' may legitimately be restricted to cynics, who in general may be called sadomasochists. It is precisely because cynics *have* identified

that they can be classified *as pseudo-personalities*. Idealists, on the contrary, seem to have a relatively uniform personality disorder, however varied their masturbation fantasies and irrational behaviour—always associated with low self-security.

Once this is clear, we may notice that the masochistic cynic may show *superficial* resemblance to an idealist. The idealist seeks a protector in order to be partly free to enjoy himself and act creatively (though his search is irrational in itself, and unfortunate in its consequences); the masochist seeks a protector in order to express his identification, and carry out hostile activities in the only manner he supposes open to him. Both may engage in self-destructive behaviour, the idealist from fear of envy, the masochist from thwarted hate. The idealist may injure others in order to appease his 'protector'; the masochist uses a similar situation to express indirectly *his own* hostility. Unlike the idealist, the masochist always uses his own sufferings to exploit others while overtly submitting.

The idealist is liable to be exploited by either kind of cynic. A sadistic partner will convince him that he is a masochist, a masochistic one will assure him that he is a sadist. The idealist will readily appease by accepting these interpretations: he is always ready to *talk* like a cynic. If he can resist a sadist, he is a sucker for a masochist, and would-be exploiters often change their tactics accordingly. In the film version of Steinbeck's *East of Eden*, the idealist hero could stand up to his father when the latter was acting sadistically, but was caught and exploited when his father became paralysed and in need of nursing. Many people whose parents could not bully them directly (as adults) have succumbed to the masochist ploy of illness—heart attacks, invalidism, etc. A child will readily interpret any shift on his parents' part from an overtly sadistic role as a sign that they now really love him. The ease with which sadomasochists slip from one role to the complementary one is already a warning against mistaking personality phases for types of individual.

In *Othello*, Shakespeare has left us a revealing triptych of portraits to make these distinctions clear—Iago the sadist, Desdemona the idealist, and Othello the border-line sadomasochist. In Iago sadism is proconscious, maintained (as Bradley saw, 1905) by the repeated rationalizations of his soliloquies. His chief reaction to the situation he creates is one of overt triumph. Desdemona is an idealist. She shows no guilt over her elopement; but she is ashamed to recognize the hostility of her husband and the way he is treating her—she even lies about the murder, to shield

him, as she lies dying. This refusal to recognize hostility and humiliation brings about her marriage to a sadomasochist, and eventually her death. Othello himself is exposed in a sequence of observations which strip away his masochism as Iago supplies him with rationalizations for sadistic cruelty and murder. Like any cynic exploiter, he is jealous, and at no time does he love his wife. After the murder, he reverts to a masochistic pattern in a speech full of guilt ('Whip me, ye devils', etc.), designed to deceive himself and the horrified Venetians about what he has done. (As T. S. Eliot noticed—1936—he makes no more reference at all to Desdemona as a person.) Gradually, as he succeeds in diverting their attention, a note of triumph emerges (the complacency of 'I have done the state some service'.) At last he resorts to the ultimate reaction of many an irretrievably thwarted sadomasochist—suicide.

Cynicism in a Threefold Situation: the Authoritarian Pattern

We must now relate cynicism to the triangular situation (Chapter 5). In his dealings with others, the cynic may split his reactions in (at least) two ways, which we may call the *authoritarian* and *revolutionary patterns*. These two patterns account for much of the automatic behaviour of large masses of people, and are thus of considerable political importance.

The authoritarian factor was discovered by the team-work of a group of psychologists, psychoanalysts and statisticians in California in the forties (Adorno *et al.*, 1950; a brief summary is provided in Russell, 1956). Several methods were employed in this study. Questionnaires were issued to about 2,000 people; some of these individuals were seen for a few interviews each, a few were studied in long series of psychoanalytic interviews over a considerable period, some were given various kinds of psychological test. These varied methods were integrated in a systematic way. Thus, individuals were selected for interview on the basis of questionnaire reactions, and later questionnaires were designed partly on the basis of interview results. In this way an increasingly coherent picture emerged, and the techniques for verifying it became more reliable and comprehensive. The final conclusions were based on information of all these kinds, and the study is still the most complete and convincing ever carried out in the field of personality.

In such a study, a group of subjects is asked to react to a suitably designed questionnaire. This takes the form of a series of statements, or

items, to each of which the subject is asked to record a measured amount of support or opposition. The items may take the form of factual assertions, or opinions, or a mixture of both—for instance:

'Familiarity breeds contempt.'

'It is only natural and right that women be restricted in certain ways in which men have more freedom.'

The subject's reactions are expressed in numerical terms, for example, $+3$ for strong support of the statement and -2 for moderate opposition. If the questionnaire is successfully designed, all the statements tend in the same fantasy direction. The reactions (which may be regarded as intention movements), are then scored in a simple quantitative way— one point for strong opposition up to seven points for strong support, so that the more positively the subject reacts to the item, the higher he scores. (Neutral or 'don't know' reactions are not permitted, for when this loop-hole is available most people use it, and the resulting questionnaires provide little information.) It is then possible to determine whether the reactions of different subjects to any two items are positively *correlated*—that is, whether a subject who supports one item will support the other, and a subject who opposes one will oppose the other, to the same extent. When a group of items have been found to be linked in this way, they are said to constitute a *scale* of *attitudes* (cf. p. 138). An individual may now be scored on his reaction to the whole scale, simply by adding up his scores on all the items of which it is made up. Of all the statistical methods we have considered, correlation measurement is in principle the simplest, and in practice it may be abbreviated by the use of a still simpler technique.

When a scale of this kind is found, it means that attitudes on a large number of topics tend to vary together. We are therefore observing an unconscious factor which links together a large number of reactions, each of which is proconscious by itself but dissociated from the others. The individual influenced by such a factor is not aware that his attitudes to many different topics are related in this way (cf. the discussion of condensation, p. 181). By observing the score of an individual on the scale as a whole, or on a suitable selection of items from it, we can measure the level of the corresponding factor in his pseudo-personality.

Perfect correlations are almost never found—that is, it is very rare to find an individual who reacts with exactly the same amount of support

or opposition to *all* the items on a scale. High correlations of the items of a scale enable us to make predictions about populations of individuals, but not about the individuals themselves in detail. From the *average* score of a large group of people on one item we can confidently predict their average score on another one. But in each individual the general level of (for instance) the authoritarian factor may be modulated by the details of his masturbation fantasy, to give erratic reactions to particular items of the authoritarian scale.

Every individual can be assessed as showing a particular level of the authoritarian factor itself. But low scorers on this scale are heterogeneous. If a person scores low, it tells us *only* that he is not markedly authoritarian, and gives little information about other automatisms to which he may be subject. For convenience, we may speak of very high scorers as *authoritarians*. The Californian authors called very low scorers 'liberals'. It is clear from the clinical descriptions that this group includes many idealists; but it may include other phases also, such as an authoritarian pattern with all its signs reversed.

From the detailed content of the assortment of varied items making up the authoritarian scale, and from the detailed observations on selected individuals, it is possible to form a definite picture of this personality pattern. The extreme authoritarian was usually brought up in a home with one overtly threatening and dominant parent, and one submissive and resentful parent—in other words, a sadomasochistic couple. As a child, he was severely attacked for the slightest expression of rage, though his dominant parent's fury was lavished freely on him. The motto of such a household might be put in the words of Milton:

> *What in the captain's but the choleric word*
> *That in the soldier is flat blasphemy,*

or in the words of Thurber:

> *This truth has been known from here*
> *to Menander: what's sauce for the gosling's*
> *not sauce for the gander.*

In adult life, the authoritarian divides all other people into two categories, technically known as the *in-group* and the *out-group*. The in-group represents his parents. It is always conceived in hierarchical terms, those lower in the hierarchy representing the submissive parent, those higher the dominant one. Since the extreme authoritarian is a cynic, who has

fully identified, he regards himself as being completely at one with the in-group. For many small business-men in the USA, the in-group was found to be Big Business—in fact, their most implacable enemy. Thus the dominant members of the in-group are people of whom the authoritarian is secretly terrified, but on whom he projects a protective attitude to himself, and whom he regards as allies—as good, strong, clean parents. In other words, his reaction to them is sentimentalized (p. 257); and he will readily support them against rival power groups or foreign countries.

The out-group represents everything that his parents projected on to him as a child. They are always weak and vulnerable individuals or groups, easily bullied and persecuted, such as political minorities. (Cf. p. 266). His own children will come into this category until they have completely submitted to him; thus the authoritarian factor is easily transmitted. Once a group is labelled (e.g., 'Jews=out-group'), it is thereafter recognized by crude key stimuli, and any conflicting facts about its members will be instantaneously repressed. The Californian authors had been asked initially to investigate susceptibility to fascist propaganda; they reported finally (among many other things) that it is almost a complete waste of time to counter anti-semitic propaganda, for example, by exposing its factual falseness. Authoritarians tolerate extensive and far-reaching dissociation even between their own projections on to the same out-group. It was shown in the investigation that the same individuals (high-scoring authoritarians) *both* felt that the Jews were too exclusive and should mix more with Gentiles *and* that they were too intrusive and should keep to themselves. (Jews were not the only out-group in the subjects studied.) The authoritarian study as a whole is an excellent illustration of the instinctive nature of human automatisms.

The authoritarian is masochistic towards dominant members of the in-group, seeking to exploit them by submissive means, and sadistic towards the out-group. He splits his own role by splitting the world into groups seen respectively as his parents saw themselves and as they saw him. (The split can also be analysed in terms of addiction and phobia, and of superego and id.) He grovels to the in-group, and hates, despises and, if possible, persecutes the out-group. 'In Churchillian phrase, he is either at your feet or at your throat, according to your label' (Russell, 1956). He is like a female macaque monkey observed by Chance (1956), which simultaneously threatened in one direction with the front part

of her body, and appeased in another direction with her rear. Extreme authoritarians occupy intermediate positions in any hierarchy. Hence, unlike other cynic types, they are usually nonentities: it is thus difficult to find individual historical examples. They are too masochistic to rise high in a dominance hierarchy.

A complex of attitudes radiate from these basic behaviour traits. Conventional people are not necessarily authoritarian, but the authoritarian is always highly conventional, because the conventions of his culture are seen as the rules of the in-group. He is thus a stabilizing, conservative factor *en masse*, tending to preserve all the out-worn automatisms of a culture until the power-group changes—for the class of cynics we have called a power group (p. 324) is precisely that chosen by the authoritarian as his in-group. He is resistant to any study of his own feelings by himself or others (really extreme ones will not answer questionnaires at all). He is superstitious, fatalistic, cynical about human relationships in the characteristic cynic manner, and obsessed with the pseudosexual enormities he projects on to other people. He may specialize in cruelty or destructiveness in accordance with the balance of drives in his pseudosexual complex, but his main preoccupation is always with power, specifically power in others.

In his relations with the opposite sex, he displays a clear-cut dissociation. All women are divided into two categories: dirty tarts, whom he uses as the objects of pseudosexual activities (like purges or emetics, p. 285), and holy creatures before whom he grovels, and whom he is afraid to approach in an overtly sexual way without special conditions. By 'dirty tart' he means *any* woman with whom he can have intercourse without marriage; he regards this as a sadistic and seductive triumph, and having 'made' or 'laid' them he can leave them. He is only likely to marry a woman who has refused him intercourse, and whom he believes to be a virgin. He will only 'respect' her (i.e., not despise her) if she is frigid. Authoritarian women, preoccupied with masochistic indirect power-seeking in the manner forced on them by their culture, exploit this split for all they are worth. They surreptitiously seduce authoritarian males and refuse complete intercourse until after marriage. They can then exploit their mates for the rest of their lives, using their frigidity, in masochistic fashion, as a means of exploitation. (Idealist women, of course, tend to be 'laid' by authoritarian males; idealist men may be trapped into marriage by authoritarian females.) Thus arises a 'war of the sexes', whose rules are provided by the cultural double

standard (women, but not necessarily men, must be virgins when they marry; hence *some* women must be prostitutes). In this mêlée, overt sexuality is never enjoyed by anyone, being seen only as a battle-ground. The most famous exemplar is Pamela, the heroine of Richardson's novel of that name, the maid who succeeded by her pertinacious virtue in marrying her master. It was this novel that provoked Fielding to his glorious parody—*Joseph Andrews*, the virtuous footman. Even in modern cultures the authoritarian attitude to sex still has considerable influence (cf. especially Mead, 1950).

To conclude our sketch, we need only add that the authoritarian shows an implacable hostility to the two great exploratory and communicative activities of art and science. He sees the artist and the scientist as his parents saw him when he first began to talk and ask questions—activities which received short shrift in his family.

Cynicism in a Threefold Situation: the Revolutionary Pattern

The authoritarian is primarily concerned with power. The other split is more particularly associated with cruel and destructive attitudes. We may call this the *revolutionary* pattern. The authoritarian factor has been exhaustively studied by the Californian workers, but the revolutionary factor still urgently needs full investigation. It could be deduced from much that we have already said, but independent evidence for its activity turned up in a curious way. A few years ago, one of us began to study the relations between the authoritarian factor and human attitudes of various kinds to the lower animals (Russell, 1956). This study was on a much smaller scale than the Californian one. Only 215 subjects were tested by questionnaire methods, and none of them was interviewed, though relevant clinical observations were assembled by us later (Russell and Russell, 1958). A questionnaire made up of twenty items was employed. Of these items, sixteen were drawn from the authoritarian ('F') scale of Adorno *et al.* (1950): all of these had shown good positive correlation with the scale as a whole, and none of them was disqualified by specific national references from use with British subjects. The other four items were statements about animals. The whole questionnaire is shown (partly to illustrate the authoritarian pattern) as *Table III*.

TABLE III

THE QUESTIONNAIRE USED (Russell, 1956)

Animal (new) items are in italics.

All other items are from the Authoritarian Scale of Adorno
et al. (1950).

1   *It is morally wrong that animals should be killed for food.*
2   It is only natural and right that women be restricted in certain ways
    in which men have more freedom.
3   Familiarity breeds contempt.
4   He is, indeed, contemptible who does not feel an undying love,
    gratitude and respect for his parents.
5   Every person should have a deep faith in some supernatural force
    higher than himself to which he gives total allegiance and whose
    decisions he does not question.
6   *No good results have ever come of vivisection, and scientists who vivisect
    dogs or cats should be treated as criminals.*
7   The sexual orgies of the old Greeks and Romans are nursery school
    stuff compared to some of the goings-on in this country today,
    even in circles where people might least expect it.
8   No insult to our honour should ever go unpunished.
9   Obedience and respect for authority are the most important virtues
    children should learn.
10 Homosexuality is a particularly rotten form of delinquency and
    ought to be severely punished.
11 Although leisure is a fine thing, it is good hard work that makes
    life interesting and worth while.
12 Human nature being what it is, there will always be war and conflict.
13 Nowadays when so many different kinds of people move around
    so much and mix together so freely, a person has to be especially
    careful to protect himself against infection and disease.
14 *Pests such as rabbits and rats are dangerous enemies of the human race,
    and should be exterminated without mercy.*
15 There are some things too intimate or personal to talk about even
    with one's closest friends.
16 *Dogs are much more admirable animals than cats.*
17 Although many people may scoff, it may yet be shown that astrology
    can explain a lot of things.

18 No sane, normal, decent person could ever think of hurting a close friend or relative.

19 Sciences like chemistry, physics and medicine have carried men very far, but there are many important things that can never possibly be understood by the human mind.

20 Sex crimes, such as rape and attacks on children, deserve more than mere imprisonment; such criminals ought to be publicly whipped.

Two of the animal items—numbers 14 and 16—were found to be correlated positively with the authoritarian scale. The wording of 14 implies, not a rational acceptance of the need to control pests, but a violent hostility towards them: agreement with this item was naturally an authoritarian symptom, since small wild animals are 'naturals' for an out-group. Agreement with Item 16, a stereotyped preference for dogs over cats, might also have been expected from authoritarians. Most breeds of dog react to their masters as of high status in a dominance hierarchy, and react with appeasement. Cats react to threat or dominance gestures by flight or equilibration; it is difficult to train a cat to obedience in the absence of his master. A dog can seem to be a fellow-authoritarian of lower status, while a cat is a constant affront to the authoritarian's defence system (cf. Lorenz, 1952, and p. 145). An individual with a moderate preference for dogs is not, of course, necessarily highly authoritarian (cf. p. 331). But this item serves as a surprisingly accurate index of authoritarian level in a large group of human individuals. When the average score on the sixteen authoritarian items is compared in four test-groups with the average score on Item 16, they give a value of $+0.981$ for the statistical measure of correlation. A value of $+1.000$ would mean perfect positive correlation; a value as high as 0.981 is hardly ever obtained in biological research of any kind. This means that, given a group's average score on Item 16, we can predict with unusual accuracy their average level on the authoritarian scale.

But the more novel finding concerned Items 1 and 6. Agreement with these statements was neither positively nor negatively correlated with the authoritarian scale. Vegetarian and anti-vivisectionist attitudes are therefore neither markedly authoritarian nor markedly liberal, but symptoms of some other factor which can vary quite independently. From general considerations we may call this provisionally the revolutionary factor, and by comparing the detailed results of the tests with other evidence we may form a tentative picture of this last cynic pattern. The

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anti-vivisectionist (in the sense of Item 6) acts ostensibly to protect laboratory animals from scientists who wish to experiment on them; in fact, in many ways, his actions only increase the sufferings of animals, which he also greatly exaggerates. Sociologically, participation in anti-vivisectionist movements is not, of course, confined to cynics of this type—many idealists are always drawn in, who act from quite different motives, and are open to rational discussion. In the more general discussion that now follows, we must remember too that in any political revolution large numbers of idealists are active; and, as usual, such idealists are only too ready to confuse themselves with cynics. They are not at all revolutionary in the sense in which we shall employ the term, for what now follows is a description of a particular pattern of cynicism.*

When an individual is developing into a cynic of the split variety, we may suppose him to become authoritarian or revolutionary according to differences in parental reaction when he acts out hostility for parents on third parties—such as pets or siblings. If the parents support and encourage him, he will be only too ready to dissociate himself from such out-groups by persecuting them to order. (We may illustrate this with the parents who condoned their son's ill-treatment of his dog—p. 245; though in fact this individual was not a cynic of any kind, but more of an idealist: he was *himself* shocked by his own sadistic behaviour, and was thus led to investigate it.) Thus arises the authoritarian. But if the parents attacked him for such acting-out, he can avoid their attack only by identification—that is, by ostensibly supporting under-dogs in subsequent life. Such secondary attack by parents is quite different from rational firmness (p. 241); it is the by now familiar manner of transmitting conflict and imposing a superego. The result in this case is the revolutionary.

The revolutionary will in adult life project on to any convenient group (labelled by him as exploiters) his own impulse to attack or exploit a

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* Our treatment here of attitudes to animals is necessarily brief; we have discussed them more extensively elsewhere (Russell, 1956; Russell and Russell, 1958; Russell and Burch, 1959). There is a close relationship between intelligence and a really constructive attitude to animals (cf. p. 116), which has interesting implications for animal experiment itself. If we have here stressed the revolutionary form of cynicism, it is because cruelty to animals is much more widely recognized as irrational. (Notice that both the vegetarian and anti-vivisectionist items in our questionnaire were so worded as to emphasize hatred of meat-eaters and experimenters, rather than concern for the animals they use.) Similar considerations apply to the more general parts of this section. We must also repeat that the reaction of an *individual* to *one* item of any personality scale tells us little, by itself, about his personality, since attitudes to any one item may spring from different motives.

helpless minority. He sees this group as his parents saw him when he acted out hostility for them against some victim. In practice, it will tend to correspond with the group chosen by the authoritarian for his in-group. It would be naïve to suppose that the revolutionary's behaviour is ever governed by the slightest regard for the real welfare of the chosen 'victim'.* On the contrary, the victim's plight must surreptitiously be made as bad as possible, so that the revolutionary can work himself up against the third party, who is actually or supposedly exploiting the victim. Scope for this sort of activity is provided by disputes over the custody of children in divorce cases. One parent, seeking to make out a case of cruelty against the other, may do everything surreptitiously to reduce the children to a state of breakdown which can be used as evidence. Within the family, we have already discussed the revolutionary game in which one parent uses the child's misfortunes to attack the other (p. 255). There are many variations. One parent may cause the child to act out some id fantasy, and the other may step in as superego representative; the first parent will now have a useful grievance. The revolutionary is precisely opposite to the authoritarian. He uses the sufferings of the out-group for attacking the in-group. Almost every act of aggression on Hitler's part was prefaced by complaints about the treatment of German minorities (and the Nazis, who vivisected human beings, savagely punished cruelty to animals—Hume, 1958). Revolutionary parties will tend to sabotage any effort at reforming the condition of the people they purport to protect; and revolutionaries will tend to hate, above all, reformers of idealist complexion. For the revolutionary aim is to accentuate the sufferings of the out-group in order to arouse maximal hatred for the in-group.

Idealists may show a concern with the sufferings of the under-dog, and an indignation with real oppressors, which superficially resembles the revolutionary pattern; for an extreme horror of cruelty may look very like a morbid preoccupation with it. A simple test, however, will distinguish the two patterns. The idealist always switches his sympathies to those who are really being attacked or oppressed. Thus, at the beginning of the first French Revolution, an idealist would be concerned with the sufferings of the under-privileged, and indignant against the aristocrats and financiers. But as the latter groups began to suffer, his sympathies would turn to them, whereas the malice of the revolutionary

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* John Brown, the anti-slavery fanatic, is a good example. The first victim of his raid was a negro.

increases when his victims are in his power. Or we may contrast the fanatical anti-vivisectionist with Charles Darwin, extreme idealist, who was shocked to the core by his observations in countries where slavery existed, and retained an acute concern with slavery all his life. When rumours of occasional sadism in laboratories began to appear, Darwin wrote to Ray Lankester that vivisection was a subject that 'made him sick with horror' and kept him awake at night. When anti-vivisectionism began, and sweeping attacks were made on vivisectors, Darwin entered the lists on the side of the latter. 'I thought it fair', he wrote to Romanes, 'to bear my share of the abuse poured in so atrocious a manner on all physiologists' (Hume, 1947, and cf. Darwin's autobiography). Terrors are made by revolutionaries, not by idealists. Idealists suffer with the out-group, whatever its composition; revolutionaries seek to turn the in-group into an out-group, and then to destroy it.

In the succession of actual power-groups, authoritarian and revolutionary mechanisms play complementary roles, and it is an ill day for any country when these two attitudes are permitted to work in combination. The revolutionary removes the old power group in the most violent and destructive way possible, and with as much expression as possible of his repressed hostility to the exploitees. A new power group rises at once to fill the vacuum, and as the transition takes place, the authoritarians are rapidly enlisted—for the old power group has now become an out-group of helpless victims, like the *aristos* of the first French Revolution. The authoritarian mechanism in large masses of people now maintains the new power group until the next convulsion. The real exploitees are not consulted; whether or not *they* want to be anybody's prisoner (p. 162) is beside the point. At some stage in the revolution the two phases overlap, and this is the signal for a spectacular blood-letting, like the Terror in 1793, in which most of the *idealists* are liquidated, by the collusion of the two cynic mechanisms. This is followed by a slaughter of revolutionaries, like that of 1794 (or the Roehm purge); and the new power group, maintained by subservient authoritarians, is comfortably in the saddle. Such is the weird melodrama of political revolution.

While the authoritarian is content to *join* a group, the revolutionary always *forms* one around him, like the Paris clubs of the revolution; he seeks always to influence others instinctively, and make them act out for him. Both revolutionary and authoritarian hate science and art, but the details of their patterns differ, and the former cynic may enlist the latter

by deliberately confusing the issue. The authoritarian, governed by the superego, is afraid of reacting to pseudosexual releasing objects (cf. p. 296), and suppresses these in a ruthless and indiscriminate way: by projection, he includes the work of science and art among the candidates for the bonfire. The revolutionary, governed by the id, seeks to suppress real spontaneous responses, and substitute pseudosexual releasing mechanisms under his own control; he therefore attacks science and art directly. The one brands intelligence as an id, the other as a superego. Consequently censorship directed against the constructive activities may be accompanied *either* by a puritanical regime *or* (as under the Nazis) by a flourishing growth of prostitution, pornography and every form of organized and directed vice. Every gradation between the two may occur at a given cultural epoch.

We may trace in many examples this theme of hostility to art and science, together with the curiously recurrent motif of special attitudes to animals. The Iconoclasts (image-breakers) of the Byzantine Empire have given their name to this aspect of the cynical patterns. In the reign of Theodosius, a multitude of pagan temples were destroyed by fanatics, at just the time when the sacrifice of animals was prohibited. Savonarola was an outstanding example: in one day he caused the Florentines to burn most of the artistic products of the early Renaissance; we cannot compute the extent of the loss we owe to this grisly fanatic, who sought to bring his city wholly under his own seductive influence. Even Genghis Khan abstained from destroying a Chinese province, when a heroic mandarin pointed out how much money it would bring in (for making war elsewhere!) if left unravaged (see p. 447). Savonarola scornfully repudiated the offer of an enormous sum by a Venetian business-man for the works of art piled up by the bonfire. He would let nothing stand between him and his revolutionary orgy. The Puritans of England come next to mind. Of these the Presbyterians were partly authoritarian, but the Independents largely revolutionary (many were shot by Cromwell). They abolished bear-baiting, not because (in the classic epigram) it gave pain to the bear, but because it gave pleasure to the spectators. Not content with closing the theatres and wholesale destruction of works of art in churches, the Puritans destroyed all the manuscripts and scientific preparations of William Harvey (discoverer of the circulation of the blood) during his absence in the Civil War (Eyles, 1957). On this episode the poet Cowley was later to make a fine comment:

> *O cursed war! who can forgive thee this?*
> *Houses and towns may rise again,*
> *And ten times easier 'tis*
> *To rebuild Paul's than any work of his.*

Finally, as the supreme example, we may cite the execution in the first French Revolution of one of the greatest of all scientists. The president of the tribunal that sent Lavoisier to the guillotine has left us a revealing remark: 'The Revolution has no need of scientists'.

Modes of Behaviour and the Cynic and Idealist Phases

Having completed our sketch of the cynic and idealist phases, we must now make it clear that there is *no* overt mode of irrational behaviour which cannot be shown (if from different motives) by *both cynics and idealists*. A man may, for instance, have affairs with a large succession of women from two different causes. Either he is a cynic Don Juan, seeking continually to addict a succession of other people and then leave them (hoping thus to keep his own addiction at bay), and acting out every time the removal of a threatening parent; or he may be an idealist, who hopes every time that *this* relationship will be really loving, and is endlessly disappointed because of his blindly idealistic choices. An overtly promiscuous woman may be a cynic Carmen (Don Juan's counterpart), or an idealist endlessly given to helping lame wolves over stiles. Obsessional thinking may stem from a concern with the past and with the subject's own hostility (as unravelled by Freud), or with the future and with repressed fear of the hostility of others. Every variety of pseudosex (including sadism and masochism, p. 327), may appear in the reactive masturbation fantasy of the idealist (and be acted out as a perversion), no less than in the identification fantasies of the cynic. The cynic will cruelly injure those on whom he has a mask transference (p. 246); but the self-destructive idealist, as an aspect of his self-destructiveness, may injure those on whom he has a self-transference, and whom he confounds with himself. The cynic will show irrational suspicions of being persecuted, through pure projection; but the idealist may show similar suspicions, through exaggerated reactions to other people's intention movements. (A third cause of suspicions of persecution may be through re-direction from a real persecutor: this may be characteristic of extreme

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hysterics, on whom see p. 350 ff.) The idealist will act out in reaction to others' hostility any behaviour that the cynic will deliberately pursue. He may show all the overt cynic patterns in considerable detail if he is placed in a situation reminiscent of the pattern of parental hostility to which he was exposed as a child; but these patterns will be assumed reversibly, and may be dropped if the situation is changed. In situations of prolonged stress or danger, what is called a war neurosis may develop; this is regularly accompanied by a full-scale cynic pattern of disturbance, which disappears spontaneously if the subject can become aware that he is no longer in the dangerous situation, his reaction to which was perpetuated by the war neurosis (cf. Kardiner and Spiegel, 1947).

The difference between idealists and cynics can therefore not be put in terms of simple differences in overt behaviour, but rather in terms of the conditions under which behaviour of a cynical nature may appear, and the manner in which it is rationalized or moralized. This principle can best be illustrated by our analysis of murder—p. 164. The idealist will oblige with almost any kind of irrational behaviour when in the presence of hostility; the cynic assumes this presence all the time. For the cynic is mainly characterized by the fact that he has identified: his adoption of parental modes of behaviour has become relatively irreversible and independent of his environment. The whole catalogue of differences on p. 315 can be deduced from this one main distinction between the two phases.

These principles become important in clinical (and, one might add, judicial) practice. It has long been customary to classify and diagnose patients in terms of *syndromes*—that is, modes of overt behaviour. Either an idealist or a cynic may exhibit (at least temporarily) any such syndrome, and methods of therapy for the one will be useless or harmful for the other. The history of psychiatry has therefore been beset by perplexing results. In reading accounts of new treatments, it is almost the rule to find that, in any one syndrome so treated, some individuals benefit and others do not. The new and heterogeneous group of drugs known as 'tranquillizers' are a case in point (cf. Shorvon, 1957; Chance, 1957b; Russell, 1957b; Russell and Burch, 1959). Each such drug benefits *some* patients in a given syndrome, but not others. Some of these drugs probably influence the level of fear, and this must have differential effects on idealists and cynics. Reduction of fear should remove an idealist's symptoms, but intensify those of the cynic, or simply transform them by jerking him from the masochistic to the sadistic role. For the idealist's

fear is his own, if irrationally intense, but the cynic's is identificatory panic (p. 327), a fear of the hostility he *projects*. We have seen that epilepsy (when not due to gross brain damage) is associated with blocked fear (p. 285); here again the fear may be of either kind, and in Dostoievsky's fine gallery of epileptics we find idealists such as Prince Myshkin and cynics such as the parricide Smerdyakov. If treatments are to become rational, the idealist and cynic phases must be differentially diagnosed; therapy could then be based on accurate prediction of which individual patients are likely to benefit from a given treatment of a given syndrome. The problem is the more urgent as all forms of psychotic disturbance (i.e., madness) can equally be shown by idealist or cynic. Differential diagnosis could be based on subtle tests derived from the catalogue on p. 315, and especially on observations of the patient's reactions in several *different* situations, in order to see whether reduction of fear will improve or worsen his condition. The main principle will always be to determine whether the syndrome is displayed *irrespective* of change in the patient's social environment.

The problem is complicated by the fact that an individual in either phase will tend to see himself as being in the other, and attempt to impose this view on others. It is part of the whole nature of the exploitive trap that the idealist maintains that he is a cynic, and the cynic that he is an idealist (p. 318). One notices this regularly after a lecture on the authoritarian pattern: idealist listeners are convinced they are authoritarians, and patently cynic listeners that they are liberals. Unless the diagnostician is acute and alert, he is liable to be deceived by this superficial and delusive reversal.

Blends, Mosaics and Phase Transition

An individual need not be wholly in the idealist or cynic phase. There may be mixtures, or mosaics, or chimaeras. An individual may be predominantly idealistic, but cynical in certain contexts, or vice versa. Such dissociated contexts may be, for instance, overt sexual activity, treatment of children, professional activities, relationships with the two sexes (e.g. idealism towards men and cynicism towards women), and so on. But the predominant phase will usually be decisive for purposes of general therapy.

The sadomasochistic switch is simply a change of roles within one

phase. Can an individual make the true transition from one predominant phase to another? We have little systematic information about spontaneous transitions outside formal therapy. It does seem, however, that in certain conditions a cynic may turn into an idealist. This may occur after a crisis in which the individual has acted out further than his instinctive pattern dictates, but only provided that his urge to addict others is reduced. It will then involve some degree of insight into his own hostile behaviour, and a re-emergence of the real personality, but probably also the appearance of an idealist disturbance. On the other hand, it is doubtful if an adult extreme idealist ever turns into a cynic. If he is brought face to face with hostility in others, transition may occur within the idealist phase to what we have called *disillusioned* idealism (cf. p. 322). The Emperor Claudius seems to have changed in this way after the sudden exposure of the crimes of his empress Messalina. While he still believed that Messalina approved of him, Claudius worked pathetically hard and patiently for the welfare of his subjects. For the idealist in his terror is desperately concerned to obtain approval (cf. p. 213), and may feel he can earn this by really constructive activities. After the disillusionment, Claudius showed what a menace a disillusioned idealist can be. He remained addicted to cynics, and simply selected new ones, whom he appeased by abandoning all personal control of the empire in their favour; they probably murdered him for his pains. Only if the idealist acquires some insight into his addiction will he make the transition to a more rational way of life, which will mean the breakdown of automatisms and the resumption of evolutionary progress in the personality.

The differential therapy of those in the idealist and cynic phases is as important as it is difficult. And what is true for formal therapy is just as true for the problems of a constructive relationship in which one partner is trying to help the other, or for the legal and judicial problems of society. In dealing with delinquency, for instance, it would be a great step forward if young idealist and cynic offenders could be *segregated* in different reform schools, where they could receive different treatment. If the two are thrown together in one such institution, the formation of criminal idealist-cynic combinations (cf. p. 320) is almost a foregone conclusion.

In the idealist phase, the first problem is to reduce the patient's fear and inspire his trust, so that he can begin to face the existence of hostility in others when it does exist. If the therapist harps on the patient's own hostility and guilt, the latter will become more idealistic than ever (p. 318).

At the same time his tendency to addiction on others (including the analyst) must be reduced, and independent exploration encouraged. In the cynic phase, the patient's social situation may have first to be restricted and then gradually widened as his wish to explore returns. At first the problem is to block all his attempts to dominate the situation by sadistic or masochistic gambits, and to seduce the analyst into his own fantasy system. He is then forced to drop his defences and consider his own situation and behaviour; the development of his own real personality can begin only in these conditions. To bring about this renascence, he must be restrained from avoiding exploration by blaming others for his own predicament, but restrained without any vindictiveness: for a revengeful criticism will only drive the cynic further into sadomasochism (cf. also p. 169).

In idealists or cynics, whether spontaneous or through formal therapy, any transition towards greater freedom and rationality is liable to be hindered in a relationship by the reaction of a partner who is not undergoing a similar transition. For the latter may continue to project on to the changing individual his personality *as it was formerly* (cf. p. 260). Unless the culture allows for considerable flexibility, the changing individual may encounter a similar reaction in the society at large.

The Sources of Idealism and Cynicism

Although we have been able to describe the two phases in terms of successive layering (p. 318), there is much reason to suppose that they are fundamentally different patterns, of fundamentally different origin. The descriptive portrayal of idealism and cynicism at once presents us with a formidable research problem—what family conditions (not to speak of wider social conditions) promote the one or the other? Many possible factors will have to be examined before we can establish the rules governing behavioural inheritance of the two phases. Since some idealists marry idealists, some cynics marry cynics, and some idealists marry cynics, the rules should be open to elucidation; but behavioural inheritance still awaits its Mendel. In this section we shall consider several possibilities, some of which may not be mutually exclusive.

The simplest explanation might be in terms of sheer neglect of children by their parents; this might well be basic to the development of cynicism. Then we might consider the conditions under which the child begins

to identify in his dealings with others (e.g. siblings) while still under direct parental pressure. Or we might advance a hypothesis against the background of the family triangle (Chapter 5). We may suppose that if one parent predominantly enlists the child against the other, the result is a cynic.

Another hypothesis requires more discussion. The attitudes of parents, in so far as they are not co-operative (and hence conducive to the development of a personality neither idealistic nor cynical), are both competitive and exploitive. The resulting environment for the child is reminiscent of the constitution of a fictional republic in one of Heinlein's stories (1955), where 'anything not compulsory was forbidden'. The parents will express their competitiveness by disapproving of any activity on the part of the child. They will express their exploitiveness by implicitly or explicitly encouraging the child to act out the fantasy role for which they have cast him. He may then appease them, and win their approval (p. 213), by permitting himself to be exploited in this way. The question now arises: *can* the individual achieve what his parents drive him to achieve for their own fantasy ends? Whether he can or not will depend on *two* sets of factors: the nature of the performance expected by the parents, and the partly genetically variable natural abilities of the child. If the demand made is sufficiently high, even a highly gifted child may not be able to meet it.

If the achievement is less than that of which the individual is capable, the demand will be restrictive, and the result will be idealism. The idealist can retain a vestige of his own personality on condition he permits himself to be exploited to the full, and also does *not* exercise his abilities to the full. (He may also express resentment of the exploitation by further self-sabotage, on the principle of 'cutting off the nose to spite the face' —cf. p. 236). Idealists are thus capable of some constructive and creative activity, but never of as much as their natural endowments permit.

If the parental demand exceeds the abilities of the child, the latter will become a cynic, identifying completely with the parents as the only possible means of appeasement, and exploiting others rather on the principle of finding a substitute performer. Hence the cynic habit of finding an idealist who is to work his brains out for his cynic exploiter to get the credit and reward. Since the determining factor is a relative one—the *ratio* between demand and ability—the cynic may be a person of great gifts (though still inadequate to meet parental demands). Hence, while most great artists and scientists are idealists, we occasionally find an

unmistakable cynic among them—Racine, for instance, with his cynical treatment of Molière, or Titian striving to suppress the rising talent of Tintoretto (but cf. p. 322).

Depression is a state of mind in which no activity is possible because no activities (it is felt) will meet with approval (i.e., cessation of overt threat, etc., p. 276). Depression is thus a reaction to the competitive part of the parents' attitude. The idealist can parry the danger of depression by self-sabotage, by submitting to gross exploitation, and by over-work which will seem to appease the parental exploitive demands without implying greater ability than they entail—Mozart is a classic example. The cynic is inevitably exposed to depression, and avoids it only by complete identification. For the idealist, there are two terrors—depression on the one hand, and identification on the other: the competitive and exploitive aspects of the parents respectively. Appeasement, and hence relief from anxiety, is attained by means of a reactive masturbation fantasy. Anxiety in the cynic concerns becoming *aware* of depression; he avoids this by means of an identificatory masturbation fantasy, since no *reaction* on his part will effect appeasement. One way of driving an idealist at least temporarily into a cynic phase is by *rejection* (p. 276), which may create such anxiety as can only now be satisfied by an identification. In this way we may account for the sudden and often uncharacteristic vindictiveness and hostility of persons who have suddenly been deserted by their current or prospective sexual partners—as often appears in divorce or breach-of-promise cases. 'Heaven has no rage like' reactive appeasement to parental identification turned, 'nor Hell a fury like a woman scorned'.

Simultaneous and Successive Dissociation: the Schizoid and Hysterical Patterns

After this exploration of the idealist–cynic dichotomy, we may now consider another, independent, aspect of personality variation. In either phase, there are two characteristic *patterns of dissociation* important for the determination of personality, and these we shall now consider in turn. In this section we shall consider their *idealistic* versions.

We have seen that where rationalization is impossible, material must be dissociated from the personality (p. 226). Such material includes all the infantile fantasies of pseudosex. There are two quite different ways

of dissociating these wildly irrational and unrealistic formations, and the releasing stimuli which correspond to them.

The first we may call the *schizoid pattern of simultaneous dissociation*. The schizoid simultaneously perceives everything in his external environment *both* in more or less realistic *and also* in wildly fantastic infantile ways. From our discussion of dissociation (p. 111), it will be evident that the word 'simultaneous' is an approximation. Really, the two versions alternate at a very rapid flicker frequency; the whole set of fantastic versions may therefore be *unconscious*. For convenience, however, we may regard these real and unreal visions as simultaneous. If the schizoid individual is mad (cf. p. 366), the two visions are equipresent in his distorted awareness; he is then called a schizophrenic, and his behaviour enables us better to understand that of the schizoid, who is not mad. To the schizophrenic, a table, for instance, may be *both* a table *and* a fire-breathing dragon. It is this form of madness which Hamlet assumes in his dangerous position, and one of the best illustrations is his dialogue with Polonius (Act II, Scene 2, lines 171 ff.). It enables him to tell very forthright home-truths simultaneously with wild conceits. 'Do you know me, my lord?' asks Polonius. 'Excellent well'; replies the Prince, 'you are a fishmonger'. 'Not I, my lord', protests the cunning old courtier, who has come to deceive and entrap him. 'Then I would', says Hamlet, 'you were so honest a man'. Polonius is completely baffled, and obliged to admit that 'though this be madness, yet there is method in't'. It is worth noting that (as here) fantasies about food and feeding are specially prominent in the schizoid and schizophrenic patterns. We may suspect that this mode of dissociation is specially readily set up in childhood feeding contexts, both on account of the child's stage of mental development when feeding problems first arise, and on account of the way the parents are likely to behave in feeding contexts. ('Fishmonger' may *also* mean 'pimp'—cf. p. 417.)

In the schizoid, who is not mad, his pattern of dissociation permits an exceptionally continuous realism and awareness of the behaviour of others. So rapid is the flicker, that to all intents his *real* vision of the world is continuous. Schizoids are thus in many ways exceptionally realistic and efficient people. They make first-rate drivers and pilots, for instance, and they are sensitive and observant in their relations with other people. Their rational responses are rapid and sure. But this is a conditional realism, for which they pay a heavy price. Since the fantastic vision, a weird phantasmagoria of infantile pictures, is equally

continuous, they are subjected to a continual battery of releasing stimuli for equally fantastic and infantile reactions. They avoid reaction to these stimuli by a total repression of their *emotional* reactions and bodily feelings. The schizoid, in extreme form, may eat because it seems about time he had a meal, and not because he feels hungry; for this feeling is utterly repressed. This mode of organization has two unfortunate consequences. First, since the flicker is so rapid, the schizoid cannot afford to have any emotional responses to his *real* vision either. Such people are therefore withdrawn and apparently unfeeling in their relationships. They observe, but do not emotionally respond. Second, the slightest disturbance, that forces the schizoid momentarily to attend to his bodily feelings or his emotional reactions, may provoke an outburst of intolerable anxiety that issues in violent action. Such are the consequences of a state in which infantile fantasies remain side by side with current experience. On the other hand, the schizoid responds relatively well to therapy. His continuous concentration enables him to understand and integrate interpretations with ease, and he is glad to strengthen the realistic side of his picture. If this comes to predominate sufficiently, he can begin to relax his repression without fear of instant compulsive reaction to the instinctive stimuli. In treating such a patient, absolute clarity and unambiguous realism are essential. The reason for this becomes clear when we consider the origin of this condition.

The origin of simultaneous dissociation has been plausibly accounted for in a paper by Bateson and others (1956), whose hypothesis is supported by convincing illustrations. We may express their theory in our terms by saying that the child has no opportunity to rationalize a course of appeasement, because the parent habitually and continuously conveys precisely *contradictory instructions* (simultaneous in the sense we indicated), both enforced by threat. The child is, for instance, simultaneously pressured to approach his mother and to move away. The result will be an impression on his part that any emotional reaction to a situation is intolerable, and the continuous perception of the environment in two different ways. In adult life, these are organized in such a way that one, at least, is realistic. The authors suggest that one possible starting-point would be an exceptionally intense conflict in one parent's reactions to the child, which this parent cannot resolve in the usual way (p. 241, etc.), and the absence of another parent or relative who might influence the situation. (Such a third party might give a sort of casting vote, in terms of which the child could decide between two incompatible appeasements.)

The authors point out that far more research is needed on the family conditions as a whole in which schizophrenia develops. We may suppose that the conditions they suggest are present in *relatively* mild form in the case of the schizoid. Opler (1957) has shown that schizophrenic patterns can vary in different cultures according to family structure, as is illustrated by differences between Irish and Italian schizophrenics (in the former culture the mother tends to be dominant, in the latter the father). The schizoid is, however, in general chiefly involved with mother, and again this might point to an origin at a particular phase of the child's mental development, when father is not yet much in evidence (cf. p. 227). In the family triangle, the schizoid naturally shows a continuous and simultaneous double-take (p. 258), observing both parents at once, but constantly liable to act out for either. When a breakdown in such a person issues in violence, he is liable to kill a man and a woman in rapid succession, as though acting out for each parent in turn against the other.

'Schizophrenia' literally means 'split thinking', an excellent description of both schizophrenic and schizoid state. It is often misleadingly translated in popular works as 'split personality'. If this term is to be used, it is much more aptly applied to the *hysterical pattern of successive dissociation*. Here there is a split of the personality into successive periods of appreciable length, in each of which a different group of fantasies is dominant, with the others repressed. Such a person is strikingly analogous to an animal, in which one dissociated mood succeeds another over considerable time intervals, and all that has been said of animal dissociation in Chapter 2 may be applied to the hysteric. Here there is no continuous realism, and no continuous total unrealism, but a succession of different partial realisms, in each of which different aspects of internal and external inputs are repressed. It is with hysterical dissociation that we were chiefly concerned in the discussions of Chapters 2 (p. 110 ff.) and 3 (p. 176 ff.), and we need not repeat the account. There are two particularly striking forms of this pattern. One is the case of true multiple split personality (cf. p. 46). The other, specially characteristic form is that which we call *manic-depression*; this again may operate, in different intensity, in both sane and mad people. In manic-depression there is a successive dissociation into two diametrically opposite phases, whose essence is easy to describe. In the depressive phase, the individual assumes that nothing is approved of and therefore nothing can be done (not even suicide). This phase is best described by pointing to its cultural ritualization in the strict Jewish Sabbath. In the manic phase, the assumption

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is that *anything* will be approved of, and therefore anything can be done. What is in fact done is largely the acting out of id fantasies, so the assumption is really that *appeasement* is now possible. The pattern may also be described as the alternate total proconscious predominance of superego (depressive phase, marked by unending self-criticism, and related to parental competitiveness) and id (manic phase, related to parental exploitiveness). In each phase, the dominant theme of the other is repressed. In the manic phase, the repressed may return in the form of behaviour leading to self-destruction. Examples are provided by the careers and deaths of the Earl of Essex (of Elizabeth I's reign) and General Gordon (Strachey, 1918, 1928). In each case, the actions which led directly to death (Essex's return from Ireland and his revolt in London, and Gordon's refusal to evacuate Khartoum) were carried out in a manic phase. In Gordon's case the manic phase was partly maintained by alcohol (this whole discussion may usefully be compared with that on addiction and phobia, p. 305). During the manic phase, the slightest environmental event, which may be interpreted as disapproval, shatters the dissociation and may therefore be resisted with violence. A mad manic-depressive is highly dangerous in the manic phase. Gordon, a relatively mild case, used to kick and beat his native servants. In brief, then, the manic-depressive conceives of himself as either in a state of grace (when he can do no wrong) or a state of sin (when he can do no right).

In interpreting this pattern, we may generalize from the conceptions of Bateson and his colleagues. If the simultaneous dissociation of the schizoid results from simultaneously *contradictory* parental instructions, the successive dissociation of the hysteric may be supposed to derive from successively *inconsistent* parental instructions. No real inconsistency may be involved in the parents' behaviour, which must be uniformly hostile, but it will take forms which appear inconsistent to the child. In view of what has been said of infantile dissociation and the toilet training situation (p. 274), it is not surprising that faecal themes are well to the fore in this pattern (whereas, as we have seen, feeding and breast themes predominate in the schizoid). In the depressive phase there are intense feelings of dirtiness and of being disgusting and rejected (i.e., unable to appease). In one of the situations of hostile toilet training, the situation on the pot, the appearance of the faeces relieves the child from overt threat *because the parent can redirect hostility from the child to the faeces*, which he or she can take away and destroy: it is the child that the parent is unconsciously anxious to destroy in this situation. In the other situation,

when the child defecates in bed or some other disapproved context, the child is treated with just the same overt hostile revulsion as the faeces. (For this reason the child may be inclined to project his own personality on to the faeces—hence a tendency to fondle or play with faeces, which necessitates the repression of discomfort due to dirt.) Here is one origin for the suicide fantasies which emerge in action in the manic phase.

But the behaviour displayed by the hysteric's parent in the toilet training situations must permeate the whole parent-child relationship. The schizoid's parent expressed a conflict by compromise, the hysteric's by oscillation (p. 87). The manic-depressive pattern is a desperate attempt to find some condition in which acceptable appeasement is possible— the manic phase. In less sharply polarized hysterics, every mood is in a different way contaminated with depression. Chronic influences are important for the schizoid, traumatic shocks for the hysteric (p. 215). There is, in particular, the shock caused by a piece of overt behaviour on a parent's part which reveals how much hostility was there all the time—the hysteric will rationalize his reaction to the shock by assuming that *only then* was the parent hostile to him. By the usual confusion of social and comfort reactions, a shock of this kind is often experienced as a sensation of *cold* (compare the similar confusions of separation anxiety p. 287). Dante, when peopling his Hell, placed in the circles of ice the *traitors*—those who had acted out on others the shock they had once experienced, and to which he thus returns them. The shock that shapes the manic-depressive will be, specifically, that of being attacked for a mode of behaviour which had formerly served as an appeasement— 'Who told you to?' (p. 258).

In the family triangle, the hysteric will display his double-takes in characteristically successive fashion (cf. p. 199), acting out alternately for each parent over substantial time intervals. As the schizoid is chiefly involved with mother, so the hysteric is chiefly involved with father: this may afford another clue to the time of onset of the two patterns, in terms of family complexity and infantile stages of mental development. In a woman, the resulting preoccupation with relationships with men may escape notice by simulating heterosexual interest. In a man, it is more obvious and illustrative, whether or not dissociated from overt sexuality. This preoccupation, along with most of the other themes we have mentioned in this connexion, appears especially in the work of Robert Louis Stevenson (who was not overtly homosexual), more exclusively concerned than most writers with hysteric and manic-

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depressive themes. Early in his literary career, he collaborated with Henley—the collaboration with another man is in itself significant—on a play called *Deacon Brodie, or the Double Life*. This Brodie, like Major Weir (p. 296), was a famous Edinburgh double-lifer, who played at being burgher by day and burglar by night; when caught, he spent his last days in his cell playing draughts—right hand against left. Collaboration recurred later in the composition of another double-life novel, *The Wrecker*. Successive dissociation, as of two personalities, deeply concerned Stevenson. In 1880 he wrote a group of stories in which manic-depression (*The Merry Men*), inconsistency (*The Treasure of Franchard*) and other related themes emerge. The best of these stories was *Thrawn Janet*, which turns on an appalling shock, that of discovering that an old woman had been occupied for years by a demon—in other words, as we may interpret, that a parent had been hostile all the time! Finally, Stevenson wrote the famous *Dr Jekyll and Mr Hyde*, in which, apart from the central theme of dissociation extending to bodily appearance, one of the characters dies of shock when the transformation occurs. Thrawn Janet, be it noted, was a woman. The hysteric must experience his first shock from mother; but in characteristic dissociative manner he may split his parents into bad (mother) and good (father)—cf. p. 256 —causing a secondary concern with the inconsistencies of the parent he has chosen to idealize.

Cynicism and the Paranoid Pattern

The cynic, no less than the idealist, may exhibit either schizoid or hysterical patterns; there is a tendency for the former to accompany sadism, and the latter masochism, though this is not invariable. But the cynic has identified. In the idealist, there is some degree of lack of integration of the real personality, expressed in the schizoid or hysterical dissociations. In the cynic, the *pseudo-personality* will tend, to a greater or lesser extent, to be organized in a systematic way. This pseudo-integration may be called the *paranoid* pattern, and, as with those just considered, it has its counterpart in a form of insanity, *paranoia*. Cynics of every variety are to some extent paranoid; the extent and efficiency of the pattern will determine the degree of deliberate proconscious consistency of the cynic's behaviour (cf. p. 326). The more completely paranoid the individual, the more of his behaviour is consistently and coherently *proconscious*.

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The paranoid pattern can be considered as a development from either the hysterical or the schizoid state. From the former point of view, it is a device for prolonging the manic phase at the expense of the depressive. From the latter point of view, it is an attempt to *reconcile*, by extremely tortuous webs of rationalization, the real and the unreal vision. The paranoid, unlike the idealist schizoid, does not take kindly to encouragement of his realistic at the expense of his unrealistic vision, for his defence system is based on the postulate that the two are consistently related. This arrangement confers on the paranoid a peculiarly dangerous *pseudo-realism*. He does not repress his environmental inputs, but persistently enlists them as evidence in support of his fantastic view of the world. Everything that actually happens can be used as grist for this sinister mill. The extreme paranoid is thus particularly difficult to treat: any interpretations will be woven into his coherent system of fantasy. (Idealists may show paranoid symptoms to a *mild* degree, but since their real personality predominates they have a *realistic* nucleus for the integration of true information.) The paranoid, in homely language, will always *twist* other people's words and deeds to fit his world of fantasy. When all else fails, he resorts to a mystical way of reconciling a fact with his fantasy, by asserting in a quite meaningless sense that one is *symbolic* of the other: 'symbol' is a favourite word in his mouth, but he is never eager to explore what a symbol really *means*. The consistency and pseudo-realism of the paranoid's behaviour make him particularly dangerous in society; what he says always contains so much twisted truth that it is liable to convince anybody, and paranoids who are verging on madness are rarely certified in time, being much less obviously mad than relatively harmless types of madmen. Many a paranoid witch-hunter has exerted wide influence over a society for quite a long time.

In the paranoid network of rationalization, the approval-disapproval theme reappears in a new form: the combination of delusions of grandeur with delusions of persecution. The paranoid feels free to act out his parents' id in virtue of his grandeur (i.e., the almost universal approval of his deeds), while the repressed competitive disapproval reappears in the form of a special fantasy in which the paranoid's intense hostility is projected on to secret enemies, who, he asserts, are plotting against him. He will brand, as these enemies, a currently fashionable authoritarian out-group. Thus he maintains a powerful proconscious identification on the strength of which he can deliberately plan and execute destructive actions. The projection of plotting is secondary. He himself is *par excellence*

a plotter, whose ultimate object is revenge. The tortuous and hostile nature of the paranoid defence, and its relation to dissociation, all emerge in the fantasy of the labyrinthine burrow (p. 289). The little boy who planned this burrow explicitly saw it as the only form of escape from the nightmare constrictions of his environment, and as a means to ultimate revenge, the only goal left for him to envisage. Without analysis (in which his mother co-operated as much as she consciously could), he might have become highly paranoid.

The schizoid sees both his parents; the hysteric sees each in turn. The paranoid, having identified, must reduce the triangle to two sides, since he no longer sees himself as a separate person. Ultimately, identifying with both parents, he will seek to reduce it to one; he seeks finally to identify the whole world with his own pseudo-personality. Just so, at the cultural level, the first step in a paranoid process is to reduce the system *two political parties + the people* to the system *one party + the people*. The final step is Hitler's—'One realm, one race, one dictator'. Such a process should always be checked at the first step, and as long as human behaviour is substantially automatic the presence of three independent forces is the only guarantee of cultural safety and progress (alike in one country and internationally). Much of political history can be considered in these terms. In complex cultures, when a third force is repressed, it usually reappears in a more sinister form. In France, the army represents the return of the repressed aristocracy; it is a dangerous third force, as the Dreyfus case, Vichy and the current French colonial wars show clearly (this sentence was drafted in 1957; it has acquired greater force at the time of re-writing). In Britain the major civil war was triangular, and inevitably ended in the success of the army. From the Restoration onwards, Crown and Parliament saw to it that this situation should not recur, and at the same time two-party politics made its appearance.

The paranoid, in seeking to simplify his social situation, is necessarily destructive. He is like a character in Rex Warner's novel *The Wild-Goose Chase*. This man, faced with the problem of investigating the life-history of an insect species, solved it by extermination, so that no problem remained. The paranoid's starting-point is an intensely distressing relationship with his mother, itself the outcome of great tension between the two parents. His more fundamental identification is with mother, and he begins by eliminating her from his calculations. Paranoid stories deal with relationships between men; the repressed woman may return in impersonal form, for example as a buried treasure. Adult paranoids

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may be overtly homosexual (like Gauleiter Heydrich), but need not be so, for they may dissociate the fantasy requirement from overt sexuality. In either event, a dissociated anxiety about sexual contact with men will reappear as an undue concern about contamination and disease (cf. *Item* 13 of Table III, p. 335, which is specially designed for the paranoid component of the authoritarian pattern). For the paranoid fears the return of that side of the triangle he supposes he has eliminated, and is deeply subject to jealousy (as common in homosexual as in heterosexual circles). He is never satisfied even with a two-some relationship until his partner has been reduced to a virtual appendage of himself, or, failing that, destroyed. Otherwise he constantly fears the return of the repressed side of the triangle, mother, even in the person of a male comrade (hence stories of diabolical or extra-terrestrial possession of 'trusted' friends). In the Greek myths, Orestes kills his mother. He has been brought up by a male slave; he has a homosexual relationship with his friend Pylades. But the representatives of his murdered mother, the furies, perpetually return to track him down, and in one version of the myth he ends in a blood-bath of slaughter. All this applies equally to the female paranoid; always overtly or covertly a nymphomaniac, *her* competition with mother looks heterosexual, and she is even more likely to elude diagnosis.

The paranoid is, above all, at interpersonal and sociological levels, a war-monger. He constantly strives to set other people against each other. To this end, he tells A plausible lies about B, and B plausible lies about A, taking extreme pains to prevent A and B from comparing notes about each other and about *him*. He is always advising people, for what seem excellent reasons, to keep secrets from each other. He excels at unobtrusively showing others in a bad light, so that when they try to expose him they will not be believed, but will only serve to confirm his insinuations. To this end he may play on his victim's releasing mechanisms, so that the latter's behaviour appears irrational and suspect to others (like Cassio's in the drunken scene in *Othello*). Or he may implicate the victim in his own activities, so that the latter seems unreliable to others when he tries to dissociate himself. A very great deal of pathology in non-paranoid people arises from the presence of paranoid individuals in our families and societies. If B behaves in an apparently hostile manner to A, A may consider that he himself has provoked the attack. Or he may puzzle his wits over the irrational behaviour of B. The last explanation he will consider is the very simple one that B has been misinformed about him by a paranoid. We have observed this process again and again.

All sorts of fantasies can thus be elaborated simply through the extreme repugnance shown by idealists to the thought that paranoids exist at all—and worse, that they include people believed to be friends. The success of the paranoid is possible precisely because people will choose any other explanation in preference to even the supposition that a paranoid has been at work. Nobody has seen this more clearly than Shakespeare, who depicted in play after play the havoc wrought when one person tells lies to a second about a third. Those who seek to understand the paranoid and his techniques will be wise to study every move of the man whom everybody called 'honest Iago'.

A paranoid can readily simulate hysterical behaviour, but a simple test will discriminate. A true hysteric, having entered a particular violent mood, can only change it when a new key stimulus impinges. A paranoid, who is throwing a theatrical fit to produce a given effect on one person, will become 'reasonable' in a moment if he sees another person entering the room, on whom he wishes to produce a different effect; the first person will then be accused of exaggeration or invention.

Although the subject requires much further study, it does seem that a distinction may be drawn between two kinds of extreme cynics. We have so far been describing the true paranoid. The other kind may be called the *charlatan*. The two types may be exemplified by Stalin (paranoid) and Hitler (charlatan). The true paranoid is extremely secretive and deceitful, uses the strategy we have described (though he may use charlatan tactics where appropriate), and usually represents himself as an 'honest, normal, reliable' member of society. The charlatan makes no bones of his intentions (which are rarely taken seriously) and proceeds to carry them out. It is a point of pride with him openly to display his worthless pseudo-personality and 'get away with it'. He claims to be an exceptional, unique person, and makes much play with 'magnetic eyes' and so forth. He represents himself as a genius, provides no real evidence of the fact, and seeks to impose this view notwithstanding. Hitler could no more have stood Stalin's protracted background obscurity than Stalin could have written *Mein Kampf* (which plainly stated all Hitler's intentions) and proceeded to carry it out. It is not yet clear in what way the charlatan dissociates,* but one obvious difference lies in the fact that the charlatan is both hypochondriacal and riddled with illness, while the paranoid

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* It is possible that the true paranoid is a development from the schizoid, the charlatan from the hysterical state (see p. 354). In some ways, the two cynics form clear counterparts of schizoid and hysterical idealists.

(unless utterly thwarted) keeps in excellent health; the former is therefore more of a sadomasochist, the latter a simple sadist. (Compare the paranoids Stalin and Robespierre with the charlatans Hitler and Marat.) The true paranoid pattern clearly belongs with the authoritarian strand, the charlatan with the revolutionary. We may also discern different patterns of superego and id; the former predominates in the paranoid, the latter in the charlatan. The paranoid proconsciously revels in competition, but represses his concern with exploitation. The charlatan takes proconscious pleasure in exploitation, but cannot stand the least hint of competition; he alone must be admired.

Usurpers and dictators, when not in greater or lesser degree idealists (like Julius Caesar), tend to fall into one of these two categories. How, one might ask, can an authoritarian stand being at the *top* of the hierarchy? It seems that the paranoid dictator (like Tiberius, Henry VII and Stalin), generally has a *mother* around, whom he ostensibly treats as inferior, but to whom in practice he shows the greatest respect. (Augustus, a rather mixed personality, seems to have used a formidable wife in the same way.) Stalin's eventual breakdown may have been connected with the death of his mother. When Tiberius quarrelled with his mother, he never dared again to rule directly. He retired to Capri, pretended he was not really governing, and ruled through favourites, whom he destroyed when necessary (until one proved too much for him). A charlatan dictator, on the other hand, though all his behaviour may be determined by his mother, overtly ignores her (if he does not go to the lengths of Nero). He maintains a woman he can utterly dominate, like Eva Braun, as the visible representative of the oppressed group on whose behalf he revolutionizes. (Dostoievsky expressed this by making Boris Stavrogin marry a mentally deficient cripple.) It would seem that in both cases a mother has stirred up a son to attack a father (whereas a father controlled the behaviour of the middle-of-the-ladder authoritarian). But the paranoid's mother insists on a measure of overt supremacy, while the charlatan's mother achieves her end by playing the injured victim. The paranoid's mother constantly blames her husband in a moralistic way; her son becomes a great censor of morals. The charlatan's mother constantly sneers at her husband for his lack of success; her son makes himself the spurious arbiter of creative achievement and of human values in general.

Idealist, paranoid and charlatan rulers differ profoundly in their attitude to public opinion. The unfortunate Romans experienced all

three types under the Julio-Claudians. We have already discussed the behaviour of the idealist Claudius (p. 344), who first sought approval for really constructive work, and, when disillusioned, ceased to 'care'. The paranoid Tiberius was supremely indifferent to public opinion. 'Let them hate me', he said, 'provided that they fear me'; and he mercilessly punished flatterers, while protecting spies and informers. It was very different with the charlatans Caligula and Nero. Caligula insisted on holding a triumph to celebrate the conquest of Britain, when *everybody* knew perfectly well he had not even crossed the Channel. Nero expected ceaseless adulation for his (doubtless atrocious) theatrical performances. Similarly, the charlatan Hitler found it intolerable not to be admired. But Roosevelt found it impossible to influence the paranoid Stalin by flattery; the dictator was only agreeable when he found an opportunity for inserting a wedge between Roosevelt and Churchill. This appears particularly clearly in one of the meetings at Teheran, discussed by Wilmot (1952, Chapter VI). But nothing in the monotonously repetitive acts of Stalin conflicts with the paranoid interpretation (see Wilmot, 1952, Churchill's Second World War Memoirs, and the very full biography of the dictator by Deutscher, 1949). It is true that he insisted on a pontifical role in the science and literature of his country; for *him*, however, this was a matter of dominance status.

Idealists and authoritarians vary in susceptibility to the different types of extreme cynic. An extreme idealist is liable to fall for a charlatan, who appears so refreshingly liberal, open-minded and unconcerned with hierarchies—who is, in short, so obviously not authoritarian. On the other hand the authoritarian is liable to fall for the paranoid, who appears so admirably solid, respectable and right-thinking—who is, in short, so obviously not a charlatan. Extreme idealists avoid paranoids like the plague. Authoritarians automatically distrust charlatans. But in dealing with authoritarians, charlatans can use hierarchical methods to surprising effect. Hitler completely crippled the German officer corps by the apparently trivial device of securing an oath of allegiance from them.

Those who wish to study at leisure a perfect comparison between paranoid and charlatan, may read Molière's *Tartuffe* side by side with Dostoievsky's *The Friend of the Family* (pp. 161, 170). The plots are strikingly similar, but the underlying motifs are quite different. Orgon, though basically idealistic, has a strong authoritarian streak, and a correspondingly dominant mother, who always calls him a fool. The colonel is an extreme idealist, with a mother who ceaselessly upbraids

him with his imaginary cruelty. Tartuffe is a pure paranoid, though using charlatan tactics. Once he has got the deeds to Orgon's house, he is quite content to drop the mask (like Uriah Heep): the reactions of the apparently ruined family no longer interest him, except as an occasion for triumph. Foma, on the other hand, repeatedly refuses money in order to sustain his theatrical role, and clings to the family throughout his life, using every device (including real self-injury) to preserve their unbounded admiration for his non-existent genius.

It is interesting that folk-lore so abounds in stories of three brothers, of which the eldest is a charlatan, the second a paranoid, and the youngest an idealist. One of us has even contributed to this species of literature, without at the time perceiving the general implications (Russell, 1955).

The paranoid-authoritarian and charlatan-revolutionary patterns are reflected in patterns of society. The former corresponds to a culture organized in rigid hierarchical terms, the latter to one where advertisement and propaganda are rampant. In the former, rewards are obtained by dominance gambits, in the latter by the sort of impudence symbolized by the Emperor's new clothes. Against these two we may also set the pattern of an idealist culture, where the over-riding factor is that of society's approval, and the supreme sanction that of ostracism. Such a society permits more creative achievement than the other two, for in it success does bear some relation to real qualities; it is, however, neither healthy nor stable. For in any such society the other patterns have been repressed, and are liable to return in a crisis as long as cultural change remains automatic (p 455). The idealist culture *par excellence* was that of Periclean Athens, which collapsed into alternate advertisement and hierarchy during the Peloponnesian War. This happened when the numbers in the city itself suddenly rose, owing to Pericles's policy of concentrating the country folk there for military reasons. Critical numbers, and critical number relationships between more or less connected groups, are the keys to a scientific sociology. We cannot embark on this exploration here. Suffice it that in modern civilized societies all three modes of cultural organization seem to be present overtly in uneasy balance, with scope for hierarchs, charlatans and the creative. Real achievement today can command rewards that Mozart and even Shakespeare could never have dreamed of; but the petty charlatan has also probably never had it so good.

Phases of Personality

We have now at last enough material for a scientific approach which may ultimately do justice to the variety of human personality. We can combine the idealist-cynic phase distinction with the different modes of dissociation to produce a table of seven types of personality—schizoid, paranoid, charlatan and four kinds of hysteric—as shown in Table IV:

TABLE IV

PHASES OF PERSONALITY

		Personality Phases Shown		
Mode of Dissociation		*Idealist* (Reactive)	*Cynic (Identification)*	
			Authoritarian	*Revolutionary*
	Schizoid	+	—	—
	Hysteric (1)	+	+	—
	Hysteric (2)	+	+	+
Basic Idealist	Hysteric (3)	+	—	+
Basic Cynic	Paranoid	—	+	—
	Hysteric (4)	—	+	+
	Charlatan	—	—	+

The seven types of individual in the left-hand column are defined in the table as showing, or not showing, each of the three main pathological phases—idealist, authoritarian and revolutionary. Thus the third type of hysteric is part idealist, part revolutionary; the paranoid is pure authoritarian. In the succession of moods, an individual with more than one phase will show correspondingly different moods in turn. One important dichotomy must be stated at once, for it is not shown in the table. All those above the centre line are basically idealists, so defined because their moods include the idealist phase; and all *basic idealists* (*the great majority of people*) show *some* degree of intelligence and real personality. *Their* pathological phases, idealist, authoritarian or revolutionary, *interrupt* and *impair* their intelligent control of behaviour.

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All those below the centre-line, having no idealist phase, are defined as *basic cynics*; *they* show no vestige of intelligence or real personality, but only the sort of circuitry that keeps a guided missile on its destructive course. They thus approximate to totalitarian personalities, by analogy with the sort of *completely* specialized, automatic, totalitarian society envisaged in the nightmare of Orwell.

We may consider the basic cynics first. The charlatan and the paranoid we have already discussed at length. The remaining category (Hysteric, 4th Type), includes those cynics who oscillate between the two extreme cynic phases, tending to be of minor sociological importance, because they undo in one mood the damage they have done in another. We must be clear that a basic cynic in action shows no trace of humanity. If Hitler has done one service to mankind, it is the demonstration, beyond all evasion, that such a thing as a human automaton is possible. But we need not assume that nothing human is left behind the automatic behaviour. We have seen that the treatment of the *relatively* cynical individual begins by some limitation of his social interaction with the real world (p. 345). His cynical fantasy world may then begin to dissolve, and a human being emerges, aware of acute distress. This reappearing core of misery must be far more intense in the basic cynic, whose fantasies have for a long time undergone reinforcement through the interaction with society. Even mass-murderers, when subjected to the extreme and literal restriction of the condemned cell, begin to show traces of human feelings long submerged, enough to make capital punishment a more cruel process than the shooting of a mad dog. This emerges very clearly in Bolitho's (1926) brilliant studies of mass-murderers, which also begin to reveal the spiral of interaction with society which brings the basic cynic to his final form. Hitler was not an island; he was the outcome of a crippled mind in gear with a crippled society: both that of Germany and that of the world outside which at Versailles contributed to make Germany what it became. We need not assume that even this extreme is beyond hope of therapy. We already know that even a paranoid defence can be breached by analysis in childhood (p. 355). But the problem of cynicism may require for its solution wide social changes transcending the possibilities of individual therapy. A witch-hunt of cynics would merely be the final ironic triumph of cynicism. But a constructive must not be confused with an idealistic approach. The first requirement is the early recognition of cynics, and their restriction from wide social activity. This would not only protect society but supply the first requisite for

reclaiming the cynic individuals; the more damage they are permitted to do, the more difficult this reclamation must become. That basic cynics can have the slightest influence on the course of events is due to the pathology of the mass of mankind, the basic idealists, to whom we now turn.

It is at once evident that the Table is only a convenient first approximation. Most of us belong to the second hysteric category, and can thus exhibit all three types of behaviour in various moods. The *proportions* of time for which the different phases are active will be of prime importance in determining shades of behaviour, and for purposes of therapy. It is obvious that there are an infinite number of different proportions possible, and hence an infinite number of types of personality. Here, therefore, we have ample room to accommodate the diversity of shades and nuances which, as any writer knows, make up the human scene. Those whose cynical moods make up a large proportion, in time, of their daily activity, must be treated on quite different therapeutic lines from those whose predominant automatic mood is that of idealism (cf. p. 342 ff.); and the relative proportions of authoritarian and revolutionary streaks will similarly dictate differential treatment. It would soon be possible to provide quantitative diagnosis by ascribing to the individual his place in this system of three co-ordinates. We already have the authoritarian scale, and need only work out equally efficient scales for the revolutionary and idealist patterns. (A negligibly low score on any one scale could be used, for convenience, to assign an individual to a corresponding extreme place in the Table—e.g. the first type of hysteric would score zero, or near it, on a revolutionary scale.) At the present stage of our knowledge, it is a plausible assumption that the individual's scores on all three scales could be added up to an arbitrary constant: in other words, the higher his score on one of the three scales, the lower his score on the other two, and so on. (The mathematically inclined may notice that, so far, a personality could be represented as a particular point inscribed in an equilateral triangle.) Basic cynics would be discriminated because they would score zero, or near it, on the idealist scale, and correspondingly higher on one or both cynic scales. In practice, of course, the items would have to be very carefully chosen to avoid proconscious falsification—perhaps items about animals would come in useful here, because apparently so irrelevant to human affairs.

This is still only the first step. It would tell us the relative amount of time an individual spent in each kind of automatic mood. We should

next require to know how the different moods were *distributed in time*—whether they oscillated at intervals of seconds, minutes or hours, and what stimuli controlled the mood changes. Some stimuli may be important for many individuals, but the particular total pattern of stimuli for the different moods, the situations that release idealist or cynical behaviour, might differ for each individual person, in accordance with his whole experience. In this sort of investigation, we can treat the three phases as if they were drives (p. 52), and employ all the methods worked out for the study of animal behaviour (cf. Chapter 2, and especially Russell *et al.*, 1954; Russell, 1954, notably pp. 174–179 and *Figs.* 10–11; in these experiments the first step was used to guide future work on the second).

Thus far the tabulation of human *automatism*. The next step would be to determine (in the case of basic idealists) what proportion of their time was spent in automatic behaviour as such (of any kind). This problem is best approached positively, by measuring the four intelligence factors, for which Halstead has provided the tests. We could then determine the *ratio* between intelligent and automatic control, and provide further co-ordinates. Societies might, in principle, be diagnosed in much the same way as individuals (cf. p. 360): here the counterpart of total relative amount of automatism or fantasy would be the total relative amount of mythology in the culture, or sub-culture (cf. p. 437). We must stress that the scheme here presented is designed primarily for European individuals and societies: we do not yet know whether other factors would be needed for describing individuals and societies in other culture-groups.

Once individuals were allotted their many co-ordinates, we could at last begin the systematic study of behavioural inheritance (for which we still have no observations as clear-cut as those of Mendel for genetic inheritance). To this end we could begin with some of the hypotheses of p. 345 ff. The individual's personality (defined in this complex way) might be deducible, in a definite way, from the relative amounts of time, with the distribution patterns, during which he was treated in particular ways as a child—such treatment interacting with his own intelligence factor levels, which might be genetically determined. Thus the more often one parent used him against the other, the more of a cynical phase he would have: and the proportions of the cynical phase would in turn be determined by the *mode* of use (cf. p. 358 on the mothers of paranoids and charlatans). This is one of the possible hypotheses available. These

different modes of treatment could in turn be related to the personalities of the parents, interacting with each other. In this way we might hope eventually to find laws which at present seem very dim and obscure. We should have to remember the possible intervention of relatives (guardians, nannies, etc.) other than parents, and the multiple relationships so generated; though it should always be possible to resolve these in terms of a fundamental triangle. Finally, the sex of the child would be relevant, and the distribution of personality patterns between father and mother; the greater the tension between the parents, the more exclusively the infant's earliest experiences will be dominated by the relationship with mother. We have seen one possible effect of this distribution of patterns between the two parents (p. 358): the paranoid-authoritarian may be of middle rank if father played a given role, but a potential dictator, in an overtly man-dominated society, if the role concerned was played by mother instead.

Enough has been said to show what a prodigious programme of investigation awaits the student of human personality. Even this account, however, has far from exhausted the subject. Further conditions and variables must be taken into account; and to these, in the most cursory fashion, we must now turn our attention.

The Psychoses

The conditions of personality we have so far described may in general be described as *neurotic*. Their central feature is a warding-off of depression, and hence of complete paralysis, by means of a masturbatory fantasy in terms of which all automatic behaviour is organized. Pseudosexual activity, as a means for reducing anxiety (that is, fear of depression), is experienced as pleasurable, through confusion between bodily comfort and relief from overt threat. In the idealist, the reactive masturbation fantasy and its expressions serve also to allay the other form of anxiety— fear of identification. Such fantasies always include an explicit sense of acting under compulsion or seduction; this aspect is suppressed or masochistically distorted in the identificatory fantasies of cynics. But whether the appeasement is reactive or identificatory, some form of appeasement *is* possible for neurotics. Hence such individuals can carry on the ordinary affairs of life, if in a more or less automatic way. The balance of competitive-exploitive attitudes in their parents permitted the development

of a *stable* system of appeasement. Under other family conditions, neither reactive idealism nor stable identification may be possible, and the result is an individual with an *unstable* appeasement system. Such an individual will sooner or later succumb to psychosis; that is, he will go mad.

We cannot enlarge here upon this important subject. We must notice, however, that the distinction between neurotic and psychotic is not absolute. A neurotic individual may have underlying tendencies, greater or lesser, to psychotic breakdown, and this latent variation will appear if a neurotic defence is abruptly shattered. At one extreme the result may be only what is called a nervous breakdown. At the other, the result may be an outburst of totally unrealistic overt behaviour. Since any such breakdown is the result of failure in the appeasement system, and since the success of this system depends in part on the reactions of society, the incidence of psychosis will be jointly determined by parental influences interacting with cultural pressures. But a breakdown may not be expressed in overt behaviour. Over a similar range, from very mild to very intense form, it may be expressed in the submissive reaction (p. 144) of bodily illness.

Psychosomatics

The most wide-spread of all dissociations is that of sensation and control of bodily functions. We are amply supplied with the circuits for awareness and control of everything that goes on in our bodies (cf. p. 209). But nearly all of us repress this awareness and abandon the control to mechanisms outside our main personality phase. After our discussion of pseudosex, and especially toilet training, in Chapter 6, it is easy to see how this repression begins. The separateness of the child and the parent who regulated his bodily functions comes to be reflected in a functional split in the individual between that part of his brain which controls his overt behaviour and that part which controls his internal physiological processes. This split is rationalized by the notion of the separateness of mind and body, explicitly proposed by Descartes and expressed vividly in Andrew Marvell's poem, *A Dialogue between the Soul and Body*. There follows, as usual (p. 112), an uncontrolled interaction between the two dissociated formations. Thus bodily function becomes available as a means of expressing any kind of infantile fantasy, and when a defence system can no longer be maintained behaviourally it may take refuge in

some perversion of the individual's own bodily health. This in turn may be used in social relations as a submissive gesture by idealists or masochists—the latter will use it to exploit others. To this automatic interaction the name has been given of *psychosomatics*. The very term, ('psyche' ='soul', 'soma'='body'), reflects the rationalization, as though there were something mysterious about this interaction. It is a confusing term, too, because the word 'somatic' is commonly used in physiology with precisely the opposite meaning, to refer to overt behaviour and its control; and, finally, it is supremely irrational to restrict the term to pathological interaction, as Beach has pointed out (1952). But the term is by now firmly rooted. For the vast subject of psychosomatics, reference may be made to Wittkower and Cleghorn (ed., 1954). In this book, primarily concerned with overt behaviour, we shall not attempt to explore this spacious field. But a few brief comments may be in place on a subject which has been much confused by the many ramifications of the mind–body rationalization (cf., for what follows, Russell and Russell, 1957; Russell, in press, *a*; Russell and Burch, 1959).

The central nervous system controls every process occurring in the body. Overt behaviour is occasioned by the contraction of a particular kind of musculature. All other bodily processes are controlled by the autonomic and endocrine systems, both controlled in their turn from the base of the brain, from which circuits run in both directions to the neocortex. (When Pavlov discovered the process of conditioning, most of the conditioned reactions he studied were internal processes, autonomically controlled. It is now known that many processes under endocrine, or hormonal, control can be affected by conditioning processes—cf. e.g., Lehrman, 1956.) The processes controlled include even the means of defence against infective organisms—bacteria, viruses, etc. In the vertebrates, and especially in the mammals, the control of internal functions and overt behaviour are closely and systematically linked: to give a trivial example, although one does not notice it, the palm of the hand sweats as one reaches for an object, with a resulting improvement in grip. The broad division between routine and emergency behaviour mechanisms has been, in mammals, matched by a similar division of the internal control systems at all levels; hence the violent internal processes which accompany rage and fear. If these internal events are not monitored by the individual's attention, they may react back upon the brain, and it is possible that this failure to observe and compensate for one's own physiological responses may contribute to the process of

conditioning itself. That is one aspect; the other is the *internal* havoc that can result from the dissociation.

In studying illness, we cannot make a sharp distinction between illness of organic and illness of psychological origin. All illness is organic and all illness is psychological. Nothing can happen in either part of the system *brain + rest of body* without effects on the other. At a given moment, we can say that a *state* of illness is organic or functional, as a prediction of the amount and type of intervention (dietary, pharmacological, surgical, behavioural) needed to alter the condition. But when we consider causal origin, we are always concerned with the interaction of two sets of factors. At one end of the scale, the brain may have to be super-efficient to save its possessor from, say, an epidemic infection to which he is not already immune; at the other, it can take advantage of the most trivial environmental stimulus (such as, in allergy, the presence of a grain of pollen), to prostrate him with almost any kind of 'vacuum' illness (on the analogy of vacuum activity, p. 82). The specific nature of an illness may in turn be determined in every variety of proportion by the two sets of factors. It may be a gross general response to stress, or a highly specific condition, such as asthma, with precise fantasy connotations. There seems to be no limit to the specificity of bodily disturbance which the dissociated parts of the brain can bring about. Any fantasy that might be acted out behaviourally may also be expressed in some particular bodily condition.

The 'Hell' and 'Purgatory' of Dante, where specific 'sins' are punished by specific tortures, may turn out, if we can decode it, to be a useful textbook of psychosomatics. Illness may be directly induced in a child as a form of competitive or exploitive influence. But once the confusions have taken place between discomfort and anxiety (p. 272), the adult cynic may revert, when his defence is broken down without imparting insight to him, to a condition of bodily illness which expresses in extreme form the discomfort originally associated with the fantasy he was trying to act out. We have already noticed (p. 352) one example of this form of Dante's poetic justice.

Courage

In this chapter we have seen most of the pitfalls of the human predicament. We have seen man swinging between the devouring Scylla of

identification and the engulfing Charybdis of depression; between the hall of the Troll King and the mountain fogs of the Boyg; between the antics of a puppet and the inactivity of a log; between two forms of negation of his personality which are both often symbolized as a return to some inhospitable and encroaching womb. Fear of depression drives the cynic to identification, fear of identification drives the idealist to depression, in a demon choice between subservience to an exploiter and resignation before a competitor. Strange, in this mêlée, are the disguises under which these rival appeasements are seen to man. By the weirdest of all rationalizations, they may be described as forms of *courage*. There is the surrender of the ascetic, the self-abnegation and repudiation of one's own wishes which might satisfy a competitive parent; there is the life of duty and conformity—the superego surrender, and the life of antic debauchery—the id surrender: two forms of submission to the exploiter. Yet all these ultimate cowardices may be recommended to us as expressions of courage! The mystic tells us it is courage to abandon all our wishes; the moralist tells us it is courage to live the life and die the death of duty; the Nietzschean or Byronic or Baudelairean anti-moralist tells us it is courage to act out the gross and meaningless fantasies of our parents' ids. They tell us that it is courageous to be miserable and unhappy in their three alternative ways. This is the ultimate confusion, for there is only one real courage, and that is the courage to be oneself, to be happy and to enjoy life. For, as Wells wrote in his wonderful parable of Mr Polly, 'man comes into life to seek and find his sufficient beauty'.

Sophocles and the King of Thebes

'Watch, spectator, . . . one of the most perfect machines constructed by the infernal gods for the mathematical annihilation of a mortal.'
Jean Cocteau (*La Machine Infernale*)

Gregers Werle: And what treatment are you using for Hjalmar?
Dr Relling: My usual one. I am trying to keep up the make-believe of life in him.
Henrik Ibsen (*The Wild Duck*: trans. R. Farquharson Sharp)

'For the gods' sake, if you value your life, don't investigate this.'
Jocasta (Sophocles's *Oedipus Tyrannus*)

The Coding of Input and the Decoding of Output

In so far as human behaviour is automatic, it can be interpreted in principle according to definite rules. If an individual behaves with complete intelligence in a particular situation, his action tells us *nothing* specific about his past experience. For his choice of action will be related to the requirements of the current situation and to his predictions of future possibilities, and the past is relevant *only* in so far as it permits this prediction and choice to be freely made. Such an individual may be using much of his past experience as information on which he partly bases his decision. However, for us, observing him, there is no way of knowing what this past experience was. All we see is that he is acting intelligently now. From his action, if we know it to be intelligent but observe nothing

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else, we can deduce only the *present* situation and the *future* contingencies to which it is related.

But in so far as the individual's behaviour is automatic, it is certain, if we observe for long enough, to deviate from intelligent response to any present situation. If we examine these automatic errors, they tell us something about the individual's *past* experience. The behaviour is such that it would have 'made sense' in some quite different situation— a situation of the individual's childhood, or in that of his parents, and so on back through the generations. It would not necessarily have been appropriate behaviour in any of these situations, but it would have been intelligibly related to them. In so far as it is irrational and automatic, then, we can regard the individual's overt behaviour as an output, his experience as a series of inputs (p. 16); and we can regard these inputs as having been *coded* into the current output. If we understand the principles, we can, by observing the individual's output in any given situation, *decode* it into the inputs from which it was derived, and thus reconstruct the individual's past experience. When we find his earliest inputs coming from the outputs of his parents, we can decode their output in the same way, so that the decoding process could in principle be carried back over the reaches of behavioural inheritance. It is this sort of decoding that makes up the study of human automatisms, derived and maintained by conditioning and rationalizing processes of the kind we have discussed in earlier chapters. *Only* automatisms can be studied in this way. Fully progressive behaviour tells us nothing about the past, *unless* it is precisely designed to do so, as in the activity of an historian. (In this connexion, cf. Ashby, 1956*a,b*).

If the individual will communicate it, rationalization itself can be pressed into the service of decoding. If we saw one of Diebschlag's pigeons doubling back and forth between the posts (p. 69), we should have, beyond this behaviour itself, no clues to the details of the bird's previous experience. But Freud's obsessional patient, who was similarly compelled to put a stone out of the way at the side of the road, and then to put it back in the middle, was able to report to Freud his rationalizations (which centred on a fear that his girl friend's carriage 'might come to grief against this stone'); these rationalizations supplied much additional information (Freud, 1909). Nevertheless, decoding of inputs is not a simple matter, for neither was their coding. In this context, we may generalize the approach of Freud to the interpretation of dreams (1932). In the irrational specializing process, earlier inputs are always used to

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determine the way in which later inputs are coded (cf. Russell *et al.*, 1954).

The infant interprets his experience in a certain way, in which rationalization plays a great part. Once he has done so for a first set of experiences, his misinterpretations determine the way in which the next set of experiences are interpreted, and so on. Childhood experiences are interpreted in infantile terms, adolescent experiences in childish terms, adult experience in adolescent terms. At each stage of coding, it becomes more difficult to unravel the original inputs. As the individual grows, he comes into contact with more and more people, and with the whole structure of society, so that his behaviour is finally directly influenced by the cultural atmosphere in which he lives. But his reactions to this atmosphere will depend on the way it is interpreted in the light (or darkness) of earlier family experience. Eventually we see the individual behaving as an adult in a certain way in a certain situation. To understand this output, we have to decode it in a series of stages, until we reach the original inputs which served as instructions for the interpretation of all later experience. Thus any automatic action in adult life can be interpreted only by an elaborate series of decoding operations, providing us with information about a series of past situations. This onion is the more difficult to peel, since the individual will himself make every effort to disguise, in his action, all the earlier experiences on which it is really based.

Fortunately, we can enlist for the purpose the rational activities of exploration and communication. The great creative writer observes his current environment, and communicates what he observes. Precisely in so far as he is a great creative writer, he cannot deceive us, and he will make his communication as clear and full as possible. It is incomparably easier to decode the inputs from his communication than from the uncommunicative and even deceptive actions of others. He seeks to make everything explicit, and reveals not only what he sees of the current situation, but how he sees it in the terms of his own personality and experience. The great writer communicates far more than he is aware. His output is available for all time, and can be further and further decoded by individuals of a later age, who may be far less gifted, but who can draw upon the explorations of all the intervening generations. This is why it is no presumption on their part to explore him further—everything new they can find in him is a tribute to *his* powers of communication. 'A good book', wrote Milton in his *Areopagitica*, 'is the precious

life-blood of a master spirit, embalmed and treasured upon purpose to a life beyond life'.

The Uses of Great Literature

Thus it comes about, that in studying human behaviour our richest materials are those provided by the great writers. One of these can tell us more than a thousand patients studied daily for years, if they lack his freedom to communicate; though the study of contemporaries affords a vitally necessary opportunity for checking conclusion against fact. Indeed, we learn more from an individual patient the more gifted he is for communication; and he benefits more rapidly. Analysis largely consists in stimulating the activities of exploration and communication, and one of its effects is always an increase in literate, articulate and imaginative writing, which (subject to differences in specific talent— p. 192) may be used as one simple criterion of success. *A fortiori*, then, one of the surest and swiftest ways of studying human behaviour is the study of, for instance, Shakespeare or Dostoievsky or Sophocles or Ibsen.

'The historian of literature', wrote Lytton Strachey (1922), 'is little more than a historian of exploded reputations. What has he to do with Shakespeare, with Dante, with Sophocles? Has he entered into the springs of the sea? Or has he walked in the search of the depth?' Strachey's observation was ironical, and he did not practise this precept. But it has often been pronounced in deadly earnest, and used as a stick to beat the would-be analyst of Shakespeare ('Others abide our question, thou art free') or Sophocles (who 'saw life steadily and saw it whole'—and we must all let it go at that). The stick is shaken the more menacingly since the exploits of the Freudians; understandably, for some of them gave the impression that when Shakespeare was suitably dissected into faecal fantasies there would be nothing left, and that great writing is only an odd perversion of displaying one's genitals. But the attitude of 'hands off the great writers' is no less preposterous. These great men devoted their lives and talents to the business of communicating their experience to us—and it is impolite to study their message! For, say such critics, much of what the artist conveys can never, never be understood, it can only be piously absorbed as an 'incommunicable experience'. This conception is related to the idea that 'Sciences like chemistry,

physics and medicine have carried men very far, but there are many important things which will never possibly be understood by the human mind' (Table III, p. 336). To such people, the artist is only an authority, an in-group, to be stared at with awe—once he is safely dead, preferably of starvation. There could be no greater affront to anyone who has concentrated all his life on the problem of communication.

And it is in terms of communication that we can objectively measure the greatness of an artist. It is in such terms, for instance, that we can declare Dostoievsky a greater writer than Tolstoy, despite their common possession of great literary talent. The observations of Tolstoy are usually made and recorded through a moralistic fog, condensing here and there into puddles of mysticism. Those of Dostoievsky are made with clarity and above all with accuracy of *association*. Both men were concerned to propagate strange brands of political philosophy; but Dostoievsky *could not distort his observations*. That is why, after reading Dostoievsky, we understand more about human behaviour, while after reading Tolstoy we are in danger of understanding less. Even if the great writer is mainly concerned with working out an irrational defence system, and even if he is trying to dissociate his experiences, he cannot help, as long as he remains a great writer, associating more than he dissociates and unrepressing more than he represses. A towering monument of irrational defence like the *Oedipus Tyrannus* nevertheless heightens our consciousness and associates in us things formerly dissociated: not because it is a defensive structure, but because Sophocles was a great writer. Pathological automatism does not (as Freudians sometimes imply) give us great writers; it only brings their careers of communication to premature ends.

The Cycle of Observation, Defence and Disintegration

For in the career of most great writers, especially dramatists, we can trace a definite cycle. It is the same cycle that we can observe in the life of any individual of appreciable intelligence, but in the great dramatist it is plainly set out for all to see. This cycle can be resolved into three phases: a phase of observation, a phase of defensive construction, and a phase of disintegration. Such a cycle is in no way fundamentally necessary, and certainly not an inherent condition of artistic creation. If we could control the specializing processes examined in earlier chapters, every great writer would continue to write indefinitely, and his work

would be progressively more splendid, instead of reaching a peak only to decline, or stop altogether. (Much the same could be said of the similar cycles of *civilizations*, which Spengler first observed, but which he supposed to be inevitable.)

We can understand this cycle in terms of an unusually intelligent individual, beset with automatisms and seeking desperately to rationalize them, but unable to rest content with any simple and glaringly unrealistic defence system. Such an individual will long continue to explore and observe, partly in the hope of finding a real way out, but also in order to weave into his defence as much realism as possible, so that it will satisfy his relatively exacting standards of rationality. He will then begin to construct the defence system itself, a marvellously elaborate structure. Thus he prepares for himself a grand general view of life which is, when complete, static, but which embraces far more true and accurate observation and association than that of a less initially intelligent individual. Once this defence is finally constructed, his explorations will cease. From now on, his successful rationalizations, and the defensive personality he has based on them, will begin to undergo the sort of dissociation and fragmentation that we have seen to be a necessary consequence of both animal instinctive system and human rationalization (Chapter 2). One symptom of this trend will be a sort of dissociation between the characters in his plays, who will cease to have real relationships; another will be a general tendency to episodic and fragmentary treatment, conspicuous after the superb construction of the plays of the defence phase. At the same time, the writer's talent for the use of words may have continued to improve; so we have the melancholy spectacle of wonderful writing lavished on the scraps and orts of a disintegrated personality.

We can trace this process in, for instance, Sophocles, Shakespeare and Ibsen. In the former, the defensive phase issued in the *Oedipus Tyrannus*, commonly considered the greatest masterpiece of construction in the history of the theatre, while the final phase is epitomized by the beautiful poetry and forceful episodes but fragmentary and inhuman quality of the *Oedipus Coloneus*. In Shakespeare and Ibsen we may observe an early preoccupation with historical plays, as though they were accumulating as much unquestionable fact as possible to use in their defence systems. There follows the phase of great creation—more protracted and fertile in Shakespeare than in any other writer. And then the explorations cease, the characters cease to respond to each other,

becoming mouth-pieces for poetic words, and there is a sudden shocking cleavage into the sentimental and the scarifyingly ugly (cf. Strachey's study of Shakespeare's final period, 1922). Ibsen, in his middle period, produced the only play to rival the *Oedipus Tyrannus* in constructive power—*The Wild Duck*. In Molière, the final disintegration took a special form, after the supreme achievements of *Tartuffe* and *Le Misanthrope*: bodily collapse was Molière's fate (see Turnell, 1947). By a tragic irony, his last play was 'The Hypochondriac' (*Le Malade Imaginaire*); and it was just after performing in the play that this great trouper died. In all these artists, the middle phase provided us with the greatest plays. For in these plays supreme attempts are made to associate, integrate and organize the material collected in the first phase.

This cycle is very much that of youth, maturity and senescence in the less gifted individual. But the phases of youth and maturity are prolonged in the great artist. It takes him a long time to specialize, and hence when he does so his behaviour is still very complex (p. 24). Then comes senescence upon him, bringing with it the polar opposite of the creations of childhood (p. 11): the technical mastery of a lifetime, yoked with an imagination that has virtually fallen to pieces. It is by their own standards that we assess the last work of such men of genius. Anyone else might have been proud to write *The Tempest*; but when we know it to be the work of the author of *Hamlet*, we can only lament: 'O what a noble mind is here o'erthrown.'

In the first chapter, we asked whether behavioural senescence was necessary or inevitable. After all the chapters between, we need not hesitate over the answer. If we can emancipate ourselves, we can look forward to a phase of human evolution in which no great creative writer experiences any such melancholy decline of his powers. And we may end with an observation by no means irrelevant to the content of this chapter. At least in the career of Shakespeare, the great middle period began with the death of his father, and ended with the death of his mother (Chapter 9, p. 418).

The Problem of Censorship

In the exploratory and integrative phases, the great writer is intensely concerned with the movements and themes of his own time, its public events and portents. These events will be seen partly in terms of his earlier

personal experiences, and hence (as we shall try to do in the next chapter), the decoder must begin with the artist's public, and proceed to his private, experience. In observing the contemporary public scene, the artist encounters a special problem—that of formal or informal *public* censorship (cf. p. 296). This in its turn he will see in the terms of his own private censorship, and much of his artifice in construction and choice of plot will be related to the need for avoiding the censor. This circumstance we must take note of, when we explore his latent preoccupations. All great literature is about contemporary life in its largest aspects; and when censorship becomes too intense, literature and drama die. We have seen an only too recent instance in the witch-hunting outbreak in Hollywood (the main scene of modern censorship, p. 297). After the witch-hunt, there was a dramatic fall in the quality of Hollywood films, from which recovery is still slow and gradual. There is a circumstance which intensifies the problem: the tendency of poets to become embroiled with their most dangerous enemies, the revolutionaries. One thinks of Sidney and the Puritans, of Milton and Marvell and the later Puritans, of Shelley, and of the poets of the nineteen-thirties. The greatest writers have avoided this compromising association; but none of them has been altogether free from the censor of his culture. Of all devices for explicit discussion of the contemporary scene, Dante perhaps hit on the most ingenious. By timing his visits to Hell and Purgatory, peopling them with near-contemporaries, and endowing some of the spirits with predictive powers, he could say pretty well what he thought of his fellows. But even he was already an exile, and he put enough notables in Paradise to be confident of finding some protectors. The contortions of censor-dodging may be unconscious. Berthold Brecht seems to have been proconsciously an admirer of Stalin. But in *The Chalk Circle* he made his tyrannical governor an Ashvili of Tiflis (plain references to Stalin), and displayed this governor's severed head on the stage. In the same play he shows unmistakably in the prologue what he felt about censorship, and the character who most obviously represents himself is made to express his intense disillusionment on finding that what he thought were liberators were simply another gang of exploiters. With all these problems, we shall have more to do in the next chapter.

For in this and the next chapter we shall bestow the lightest glance on the work of two of the very greatest writers of all time. It will be clear that we are but tapping the outcrops of a vein which will not easily or soon run out: and in this field, everyone who can read may be his own

geologist and miner. We shall begin with the plays of Sophocles on the story of the Royal House of Thebes.

Sophocles and the Laws of Athens*

Sophocles appears to have had the longest life and the longest and most prolific output of any great writer. He lived to be ninety (496–406 B.C.), and wrote well over a hundred plays. He was an Athenian of rank and wealth, the son and heir of a native-born arms manufacturer (and must have financially benefited rather than suffered from the war with Sparta that occupied, with one short interval, the last twenty-five years of his life, and ended with the ruin of Athens a year or two after his death). He several times held public office, including the rank of general, though on an essentially diplomatic mission. He was a member of the provisional government set up by the Athenians in their most desperate emergency, after news reached the city of the crushing débâcle of their expedition to Syracuse. At the time of his death, the Spartans were occupying the country round Athens; they are said to have permitted his funeral cortège to pass through their lines to the suburb of Colonus, where he had been born and where, like his hero Oedipus, he was to end. The surviving comments of contemporaries seem to establish him as a man of exceptional charm and popularity. He seems to have been, like Shakespeare, an entertaining conversationalist, and despite his phenomenal success as a playwright (he won the dramatic awards again and again), he does not seem to have been the subject of much overt envy. His impeccable good taste appeared on the occasion of the death of his rival Euripides, when he dressed the chorus of his current play in mourning.

In this uniformly successful and popular career, one jarring note is struck. The story runs that, when he was in his eighties, his sons became alarmed at his preoccupation both with the stage and with a certain courtesan called Theoris. The eldest of them, Iophon, tried to have the old man deprived of control of the family property, on grounds of senility. Sophocles rebutted the charge by reading to the jury a chorus from the *Oedipus Coloneus* which he had just composed. It is doubtful

* For Sophocles's life and plays, reference may be made to, e.g., Murray, 1897; Bury, 1913; Thomson, 1946; Kitto, 1951; and the editions of his plays by Sir Richard Jebb. Penguin books have published a translation of the three plays discussed in this chapter.

in fact whether there was a public hearing; but there is every reason to accept the tradition of a violent quarrel with his sons, and the very play from which he allegedly quoted contains the most savage curse ever uttered by a father on his sons in the whole of literature. As often happens, his grandson seems to have been more approved by the old man. This youth, also called Sophocles (by a fairly habitual Athenian naming practice), was to renew the family interest in the stage, and produce some of his grandfather's plays.

The early years of Sophocles's life were marked by the culmination of the work of Themistocles, Cimon and Pericles: the foundation of the Athenian Empire, and the sudden flowering of Athenian civilization. The fatal war began (431 B.C.) when he was already in his sixties, to be decided almost at once by the devastating plague of Athens, though that resilient city continued, apparently, to dominate the war until 413, and managed to sustain it for a decade longer. Of the plays we shall consider, the first, the *Antigone*, concerns a successful war of self-defence and the internal rancours that followed it—a recurring theme at Athens, where, some years later, a great naval victory was followed by a wholesale execution of the victorious generals. The second and greatest play, the *Oedipus Tyrannus*, was produced in 425, not long after the plague, and this play opens with a dreadful pestilence raging. The third, the *Oedipus Coloneus*, must have been written when the downfall of Athens could no longer be hidden from any intelligent observer. Its main theme is the myth that whatever city possessed the body of Oedipus would be eternally invincible—and that Oedipus found his last shelter at Athens!

If we are fully to appreciate the significance of the three Theban plays, and especially of the *Oedipus Tyrannus*, we must glance at the property laws of Athens. For any Athenian, litigation was one of the most important matters in life. No other culture has ever lavished so much of its time and skill on the law courts, and sheer numerical considerations force us to suppose that hardly any Athenian citizen went through life without several lawsuits. This national habit inspired a comedy of Aristophanes, *The Wasps*. There were close parallels between the two main Athenian entertainments—the law court and the theatre. Athenian advocates did not appear in person. They wrote the script and produced the performance of the defendant or plaintiff himself, just as if he were an actor. The peculiar distinction of the style of Sophocles is its close resemblance to that of the Athenian legal speech-writers, which was often vivid and brilliant but always so realistic and

unmannered as to seem natural in the mouths of amateurs (i.e., the litigants themselves). (For instance, Sophocles, unlike the other dramatists, made his sentences run across the structure of the verse lines, achieving the effect of an intensely poetic prose.) The great Sophoclean scholar, Sir Richard Jebb, prepared himself for the task of editing the plays by the discipline of first editing the surviving works of the Athenian court speech-writers. It is not surprising that Sophocles's treatment of the myths is permeated through and through with the cultural premises of the laws of Athens.

Property and the Family in Athenian Law

The laws of Athens were based on the code constructed by Solon in the sixth century B.C., which was preserved virtually unchanged for three hundred years, and which so impressed the ancient world that the Roman Republic was eventually to send a special commission to Athens when compiling its own Code. Athenian jurisprudence consisted entirely in the interpretation of the Code of Solon (much as the United States Supreme Court can do no more than interpret the written constitution of that country); and *via* Roman Law the work of this remarkable man has continued to influence Europe.

Solon's reforms and codification were occasioned by an economic crisis, which he was called upon to solve by his fellow-citizens. Land and other property was being concentrated in a few hands, and free citizens were not only losing their lands by the foreclosure of mortgages but their personal freedom as well, becoming the slaves of their creditors when unable to pay debts contracted on this sinister security. It is therefore not surprising that the laws of Solon are overwhelmingly concerned with the preservation of family property. What is of special interest is the use that was made of women for this purpose, for throughout the history of Europe relationships between the sexes, and between parents and children, have been bedevilled by the ever-present connexion between women, children and property. Here, too, we can trace the origin of the authoritarian double standard as a cultural institution (p. 333), for, as Dr Johnson said, 'Confusion of progeny constitutes the essence of the crime [of adultery] and therefore a woman who breaks her marriage vows is much more criminal than a man who does it.' When two people decide to live together, their financial relations might rationally be

governed by a contract—but this is always inextricably confused with the 'marriage vow'. Thus do human relationships become envenomed.

The essential features of Athenian law are admirably summarized by Freeman (1946), in the introduction to her translation of a selection of Athenian court cases—cases that make instructive as well as entertaining reading. Had Freud had access to a little of the information made available in this book to a wide public, he might have been less ready to speak in such glowing terms of the sacred relation between mother and son, the appealing idyll of little Oedipus. We have touched on the grim results for both sexes of the overt exploitation of women (p. 302); let us look at the sort of exploitation to which they were subject at Athens, and how as a logical corollary the natural inclinations of men too were enslaved.

No Athenian woman could own property, and no woman could plead her own cause in a court of law (and, of course, no woman had any say in the proceedings of the Assembly or could hold public office). How did this affect the transmission of property? We must first notice that only the offspring of a marriage between two Athenian citizens were legitimate; not, for instance, those of a foreign mother. If a man had legitimate male heirs, his property was divided between them automatically and *equally*. (Here we see the significance for Sophocles and his audiences of the fate of the two sons of Oedipus, who were supposed to reign over Thebes alternately—an arrangement that naturally ended in permanent usurpation by the one who took the first year, Eteocles.) The testator could do nothing else; the whole of his property was entailed in this way. The sons had to support the widow and provide dowries for their sisters.

If the testator had no legitimate male issue, he was allowed to choose an heir outside the family. But this heir had to be adopted as a son, and he was obliged to marry one of the testator's *daughters*, if there were any. The couple were then to raise children to continue the testator's line. The adopted son (in fact the son-in-law—the modern phrase itself reflects its origin), lost all right of inheritance in his own family, and held the inherited property solely in trust for his children. The daughter herself 'went with' the property. *She did not own it, but she was, in this strange way, attached to it, so that it could only be obtained by marrying her.* If the testator died without either a son or an adopted heir, the nearest male relative was supposed to marry a daughter of the testator, and so acquire the property, which was thus retained in the family; there were

often several rival contestants for this privilege. In this connexion a considerable degree of incest was permitted and almost enforced. An uncle could marry his niece to obtain her late father's property, and a half-brother could marry a half-sister if the parent they had in common was the *father*.

These arrangements may be seen as a watering-down of the principles which governed the descent of the Kingdom of Egypt. There is a tradition that Solon visited Egypt at some time in his life, and there are Egyptian associations in the Oedipus myth (such as the Sphinx). It was a proverb in the ancient world that the Egyptians always went the whole hog. To obtain the succession (just as in Athenian law) it was necessary to marry a Pharaoh's daughter, and for this purpose closer incest was permitted in Egypt. A full brother normally married his full sister, and in some cases a father married his daughter when his first wife had died. Thus incest customs are inextricably entangled with the possession of property or rank, and the woman, though only a pawn, is a key pawn—indeed she may be a Queen in the chess sense! This was a reason why the Roman conquerors of Egypt were obliged, in succession, to have sexual relations with Cleopatra, a Macedonian, but reigning in Egypt.

One type of incest was banned alike in the diluted Athenian and the concentrated Egyptian system: *incest between son and mother.* Given the fundamental confusion of woman and property, it is easy to see why this form of incest was so feared. If a son could obtain a kingdom or estate by marrying his mother, there would be (or seem to be through projection in a system of competition and exploitation) an irresistible incentive for a son to murder his father. The murder would be necessary, for adultery would not do. (The code of Solon permitted a husband to kill his wife's lover with impunity, and obliged him to divorce an unfaithful wife.) But it is not the son who might be supposed to benefit from such an act. The possibility of mother-son incest would at last provide the crushed and exploited *woman* with her opportunity. She could train up her son to act out her own resentment by killing her husband, and she could then rule indirectly through a man subject from infancy to her influence. (The younger Agrippina, who almost certainly arranged her husband's murder, acted out the full incest fantasy with her son Nero, and tried openly to rule through him: but, as might also be expected, the charlatan Nero killed her in the end.) Thus the myth of mother-son incest is inherently connected with that of parricide,

and both may be seen as expressions of resentment and exploitation on the part of a mother. This is the Oedipal situation: and we can now turn to the plays of Sophocles on the House of Thebes.

The Theban Plays*

Any account of the three surviving Theban plays of Sophocles is rendered confusing by the fact that they were not composed in the chronological order of the mythical events they portray. They were composed in the order: *Antigone*, *Oedipus Tyrannus* (=Oedipus reigning) and *Oedipus Coloneus* (as it is called in the Latinized form, the original title being *Oedipus at Colonus*). The first is a product of Sophocles's early maturity, the second is his masterpiece, the third is the work of his old age. But the mythical events of the *Oedipus Tyrannus* are the earliest, followed by those of the *Oedipus Coloneus* and finally by those of the *Antigone*. In our brief summary, it will be convenient to keep to the natural order of events in the myth. We shall have to keep three things separately in mind: the 'facts' described in the myths as treated by Sophocles, their use as part of a defensive construction, and their underlying significance as coded information about family relationships.

The Oedipus Tyrannus

In *Fig.* 29, we have drawn a family tree of the Royal House of Thebes, including only those individuals who play an important part in the myth as treated by Sophocles. The tree differs from all others ever constructed in a sufficiently obvious way.

A great deal has happened before the *Oedipus Tyrannus* opens, and the play itself consists largely, in the manner of Ibsen, in the gradual

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* To see Athenian plays in perspective, it is well to remember that their production was extremely colourful and spectacular. One of Aeschylus's heroes made his entry in a chariot, and the Furies in one production were said to be so terrifying that women in the audience miscarried (Kitto, 1951). Enterprising and inventive, the great writer-directors were always introducing new technical devices. Sophocles himself invented scene-painting, besides his more fundamental innovation of having three or more characters on stage at once (the great importance of this will be evident from the material in Chapter 5). The dramatists could indulge their taste for grand theatrical effects, because they were supplied by the state with rich, tame backers, whose office carried honour and prestige, and surely represented the most creative form of taxation ever evolved.

discovery of links between past events. Many years before, Laius, King of Thebes, had asked the Oracle of Apollo at Delphi whether he was going to beget a son. The Oracle replied that he would beget a son, by whom he would be murdered. When, soon after, Oedipus was born, Laius ordered his wife Jocasta to expose the child on a hillside with his ankles pierced by a pin. Jocasta entrusted the task to a Theban shepherd and family slave. This slave did not carry it out, but gave the baby to a neighbouring herdsman, the servant of Polybus, King of Corinth. The Corinthian shepherd took the baby to Polybus and his wife Merope, who, being childless, brought him up as their heir.

This opening really establishes the whole plot, and serves as the construction of that 'infernal machine' which, in Cocteau's version of the myth, destroys Oedipus (cf. the chapter heading, p. 370). Laius redirects on to the baby his fear of the resentment of Jocasta. Owing to this redirection, he makes the mistake of trying to make her act out her competitive fury on the baby. Jocasta (unconsciously, if such terms may be used of a myth) makes quite certain that the baby will survive, by choosing an agent motivated like her by resentment against their common master, Laius. (In these myths, slaves naturally play a similar part to women, being also victims of overt exploitation. Orestes was brought up by a slave—cf. p. 356.) At the same time, Jocasta contrives to express a good deal of hatred for the child. Oedipus is so called ('swollen foot') because his ankles were permanently deformed by the pin driven through them. Jocasta thus betrays her covert intention to make the oracle come true, preserving her son for the purpose of destroying her husband. From the outset, the baby is the object and instrument of all the violent, hostile feelings the King and Queen entertain for each other.

Oedipus grew up at Corinth, but when he was still a young man somebody at a feast cast aspersions on his birth, and he set off to Delphi to consult the Oracle and find out whose child he really was. The Oracle did not answer directly, but told him he would marry his mother and kill his father. (The Oracle itself is plainly symbolic of hypnotic suggestion —cf. Chapter 3; though this by no means exhausts the significance of Oracles in Greek history and legend, on which see Parke, 1939.) Oedipus, who was still largely convinced of his Corinthian parentage in spite of the remark at the feast, assumed that this Oracle referred to Merope and Polybus. Instead of returning to Corinth, therefore, he took a track leading northwards through the mountains from Delphi.

Meanwhile the Sphinx, a formidable feminine monster, had appeared
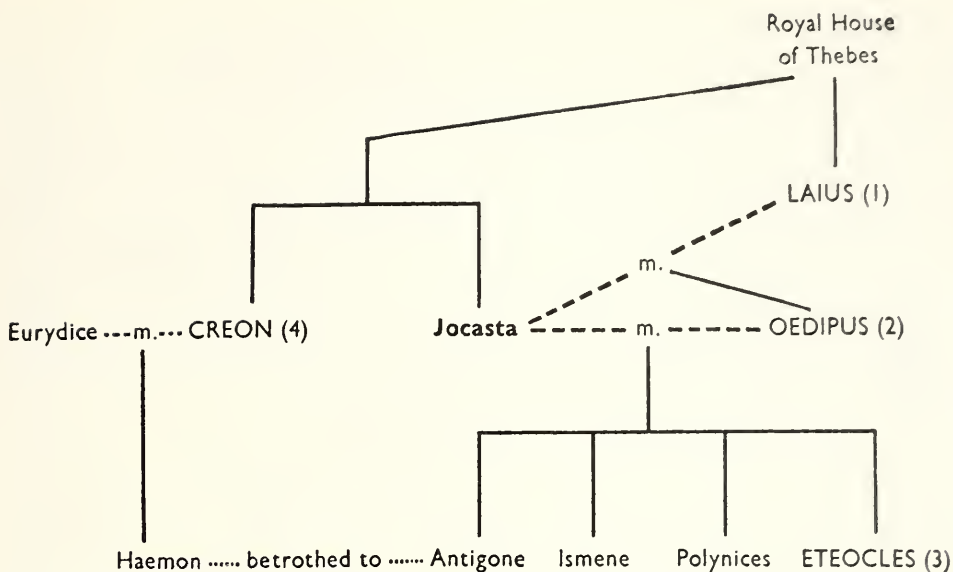
FIGURE 29—A FAMILY TREE OF THE THEBAN DYNASTY

This tree shows only characters alive at the period of one or another of the Theban plays, with the addition of Laius. Four of these characters became Kings of Thebes; they are shown in capitals. The figures following their names in brackets indicate the order of their succession.

As the tree shows, Creon and Jocasta were descended from a branch line of the royal house of Thebes, of which Laius came in direct line. Their father Menoeceus and Laius's father Labdacus were first cousins, both being grandsons of Pentheus, an early King of Thebes.

The unique characteristic of this particular family tree needs no comment. It is, however, worth noticing the central position of a woman, Jocasta. Of the four Kings shown, the first was her husband, the second her husband and son, the third her son, the fourth her brother.

outside Thebes. She destroyed everyone who could not answer her riddle—'what goes first on four legs, then on two, then on three?' Laius set off for Delphi with four attendants, to ask the Oracle what steps he should take to deal with this monster, which was depopulating Thebes. On a precipitous place where three crossways met, he and his party encountered Oedipus. The old King, who was in a sort of sedan-chair, tried to force Oedipus aside, and struck at him with a club: Oedipus, in self-defence, killed the King (whom of course he did not know) and three of the slaves. The fourth, who happened to be the old herdsman who had failed to kill Oedipus as a baby, fled back to Thebes and reported the murder of the King by 'robbers'. He then left the city and retired to his sheep pastures.

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Oedipus went on towards Thebes, encountered the Sphinx, and told her the answer to her riddle, which was 'Man' (who first crawls on four legs as a child, walks as a man, and uses a stick when an old man). Besides the phallic imagery, the riddle contains obvious references to Oedipus's own feet, pinned together to form one, and to the stick with which his father attacked him. Much indeed could be written about this riddle —the four legs of a pair of parents, the use of another individual as an instrument, and so on. The Sphinx, on hearing the answer, killed herself. Thus is expressed the notion that if parents can continue to deceive the child about their own hostility, they can injure him; but if he becomes wise to it, they will suffer themselves.

On arrival at Thebes, Oedipus found himself a national hero, and was rewarded with the vacant Kingdom—on condition of marriage to Jocasta (cf. p. 381. In terms of Athenian law, Oedipus had, owing to his adoption at Corinth, lost his hereditary rights at Thebes. He is therefore accurately called a 'tyrannus'—that is, a ruler who is not a legitimate monarch). The couple lived together for years and produced two girls, Antigone and Ismene, and two boys, Eteocles and Polynices. All seemed well, when a terrible pestilence broke out, and Oedipus sent Creon, Jocasta's brother, to Delphi, to find out what to do. The play opens just before Creon's return, as a deputation of Thebans appeal to Oedipus to deal with the pestilence. We may infer that his subsequent actions occur under the pressure of a power group (p. 324).

Oedipus is elated with his success over the Sphinx, and confidently expects to solve the problem. Creon, returning, announces that the Oracle instructs them to destroy the murderer(s) of Laius, whose unavenged murder is polluting the city. (This notion underlay all Solon's laws on homicide.) Oedipus pronounces a terrific curse on the unknown murderer, and sends for the aged blind prophet Tiresias. The prophet at first refuses to speak, and is finally stung by the King's taunts into accusing Oedipus himself. Oedipus is furious, and accuses Creon of plotting against him, and bribing Tiresias. (Oedipus's behaviour in this part of the play *looks* paranoid, but might well be the reaction of an idealist to implicit hostility.) A furious scene is interrupted by Jocasta, who reassures Oedipus that prophecies are nonsense. In support of this, she tells him the original oracle about Laius, and the steps taken to kill the baby. The oracle was plainly false, she says, for the baby died and Laius was killed by robbers at a triple cross-roads. This is the first great dramatic moment of the play.

Oedipus listens in silence, and then remarks that as he had listened his mind had been troubled and disturbed. Jocasta asks why, and he draws attention to the phrase about the cross-roads. He now describes his own adventure on the road from Delphi, and, as he cross-examines Jocasta, he grows more and more afraid that he himself is the murderer of Laius, whom of course he still does not know as his own father. To make quite certain, he has the herdsman sent for (the one who had survived the fight).

It is at this point that we can both observe and penetrate the Oedipal defence. For what really troubled and disturbed the mind of Oedipus? Clearly the casual revelation of the appalling hostility of both his real parents. In Cocteau's version, we come a little nearer the mark: Jocasta does not dare to tell the story of the ill-treated baby as her own, but as if it were the story of another Theban woman, now dead; and Oedipus declares that if such a monstrous woman were still alive he would have her tortured to death. Cocteau's Oedipus represses his horror at the murderous hostility of both parents by a vindictive identification, on the sadistic pattern. The Oedipus of Sophocles takes an idealistic turn. He represses all his reactions to Jocasta (who has exploited him so success-fully), and uses her account to lead him off on the track of his own 'crime' against his father. The Oedipal defence is the notion that the great discovery is that of something one has spontaneously done oneself, and the notion is used to repress the discovery of what has been done to one, and what one has been forced to act out for others. Pseudo-guilt is used to repress shame. The play is a gigantic double bluff. It purports to show the gradual association of dissociated facts, and the gradual discovery of a secret—but the discovery itself is used to bury the secret more deeply than ever: above all, the secret that Jocasta has used her son to destroy her husband.

Events now begin to move fast. A messenger from Corinth arrives to report the death of Polybus, and the succession of Oedipus to the Corinthian throne. Oedipus exults over the apparent failure of half the oracle, but is still afraid to visit Corinth in case he marries Merope (a notion clearly related to that of succeeding Polybus as King). The messenger, who turns out to be the very shepherd who had received Oedipus as a baby from his Theban neighbour, reassures Oedipus. There is nothing to worry about, he observes, for Oedipus is not the son of Polybus at all—and he tells his story.

This is the second great moment in the play. Jocasta now infers all,

and she implores Oedipus not to investigate further. Ostensibly, she is afraid of his discovering about the incest, but (as the Cocteau version makes clear) her real terror is of his discovering how he has been treated and used. Oedipus, deeply misinterpreting, assumes that she is being snobbish, and that she is afraid of his discovering himself to be of low birth. He determines to go ahead, and Jocasta rushes away into the palace, where she hangs herself. Her suicide is exactly like that of the Sphinx, and she is really forestalling a murderous attack by Oedipus when he learns the truth. (Euripides, more explicit, makes Oedipus murder Jocasta, in a play of which only fragments now remain.)

The Theban shepherd now arrives to be cross-examined about the death of Laius. But this cross-examination never takes place, for he is at once recognized by the Corinthian shepherd as the man from whom he had received the infant Oedipus. The Theban tries desperately to conceal his secret, but Oedipus insists with threats, and the whole factual truth at last comes out—Oedipus is the son of Laius and Jocasta. Oedipus cries out that all is now clear, and that he will look his last on the light, for he has been procreated by those by whom he should not have been produced, he is mated with those with whom he should not be mated, and he has killed those whom he should not have killed. The sentence sounds tortuous; it is more pithy in Greek, where the plurals also sound less evasive (they have somewhat the force of the French '*on*'). Nevertheless it contains in itself the whole pith of the defence: that the truth which is now plain is a truth about his own spontaneous actions, and not, as it really is, about the hostility and exploitation to which he has been exposed, and of which he has been the automatic active instrument. With these profoundly deceptive words, he too rushes into the palace.

The End of the Oedipus Tyrannus, *and the* Oedipus Coloneus

Up to this point, the *Oedipus Tyrannus* is a miracle of construction and subtlety. Almost every line, even in the author's intention, means one thing to one actor, a second to another, and a third to the audience, often more; were we to attempt deeper analysis, a chapter could be written on almost every sentence in the play. The play does associate things usually dissociated, so much more than the author intended, that today we have the whole complex of relevant associations laid out before

us: the great writer cannot permanently deceive, even though this one deceived Freud into the belief that a human male naturally and inherently wants to marry his mother and kill his father. The truth comes out in the form of a *divine* compulsion; and who the gods really are is clear enough from the desperate words of the terrified Jocasta (chapter heading, p. 370): the gods are the parents, and their parents before them, and the whole complex of behavioural inheritance.

But as soon as the great climax is reached, the play disintegrates. There is no more suspense, only horror, and what admiring Victorian scholars spoke of with bated breath as a dignified and tranquil Greek ending: by which they meant an anti-climax. The defence has been established, and we might as well all go home. A messenger reports that Oedipus had gone in search of Jocasta with a drawn sword—the return of the repressed with a vengeance! Finding her corpse, he seized her brooch-pins and put out his own eyes, with perhaps the most significant words of all—reported at second-hand by the messenger, and thus rendered in direct form by Jebb: 'Ye shall not see the evils which I was suffering and doing, but in darkness henceforth ye shall see those whom ye ought never to have seen, and fail to know those whom I longed to know.' When Oedipus eventually appears, he explains that he has blinded himself in order not to see his parents in the next world. The shock has been too much; repression is now total, and in due course he will cease to see even what he has done, let alone what was done to him. Creon now appears, and agrees to look after the daughters of Oedipus, but tells the wretched man himself that they must inquire further of the Oracle before deciding his fate.

In the *Oedipus Coloneus*, the transition has become complete. The *Oedipus Coloneus* displays a full-blown paranoiac delusional system: an identification with the dead Jocasta, expressed in fantastic terms. The Oedipus of the earlier play was an idealist, seeking to explore but repressing the hostility of his parents; the shock of discovery was too much for a neurotic defence, and he has now become a psychotic cynic. In putting out both his eyes, in order not to observe either parent, he has reduced the triangle to one side, and established a complete identification over his mother's dead body. Oedipus is now wholly given over to exploiting others. His daughters he exploits directly; they are to devote their lives to guiding him around Greece. (For the blindness of the exploiter, cf. p. 156.) His sons, in the course of the later play, he shatters with a curse—the curse that they will destroy each other. He thus

expresses his competitive envy of their possession of the throne he has lost. But he also expresses his total identification with Jocasta. For by the curse he causes each son to kill the other—just as she had caused him to kill his father; and incidentally they do so for the benefit of Jocasta's brother, the last King of the Theban line. The motif of the *Oedipus Coloneus* is the paranoiac belief (ascribed to yet another oracle) that whichever city owns the body of Oedipus will be invincible in war—just as the living body of Jocasta was the key to the possession of Thebes. The Thebans have too hastily exiled Oedipus before discovering all this; Oedipus has arrived at Athens and is seeking shelter at the suburb of Colonus (Sophocles's own birth- and burial-place) from the Athenian King, Theseus. We need not describe this play in so much detail. It has none of the compact excitement of the former one, but consists of a series of incoherent episodes and exhibits every sign of dissociation between them. There are passages of beautiful verse and passages of furious invective, just as in the last plays of Shakespeare. Creon turns up, trying to get Oedipus back, and attempting to kidnap his daughters as a form of blackmail; the Theban is repulsed by the hospitable Athenians. Polynices appears, asking for help against his brother, who has kept the throne (p. 381); he only provokes the dreadfully impartial curse. His parting words are to his sister Antigone, whom he urges to see that his body is properly buried. Theseus himself cordially welcomes Oedipus, who favours him with a profoundly cynical speech about the nature of human relationships. Finally, Oedipus enters the Grove of the 'Eumenides', or 'Good-Natured Goddesses'—that is, the Furies who avenge matricide. Oedipus feels quite at home here, for he is, after all, now identified with his mother. There in the grove, he is mysteriously transfigured—so, at least, it is assumed by the pious Athenians, and certainly nobody ever finds the body.

The Antigone *and the Role of Creon*

To complete the story, we must bestow a brief glance on the earliest of the three plays, the *Antigone*. After the disappearance of Oedipus, Polynices went off to Argos, where he enlisted six hero allies for an attack on Thebes. Thebes was bravely defended by Eteocles, and withstood the attack, in the course of which Eteocles and Polynices killed each other in single combat, fulfilling the curse. The unobtrusive Creon

was now King of Thebes. But as usual the person of the *heiress* was the key to the throne, and this heiress was now Antigone. (Her sister is little more than a foil to her, and seems not to be seriously considered.) This supposition is confirmed when we find that Creon's own son Haemon is betrothed to Antigone.

The *Antigone* concerns the final destruction of the Theban House. Creon has given orders that Eteocles shall be buried with all honour as the city's defender, but Polynices exposed to the birds and beasts as a traitor—anyone who buries him is to die. Antigone defies the order, and buries her brother with pious rites. Creon is much perplexed, but feels obliged to enforce his order, and Antigone is shut up in a cave to starve. Under the influence of the irrepressible Tiresias, Creon repents, but too late. When he reaches the cave, he finds that Antigone has killed herself, and so has Haemon, who had pleaded in vain for her life. Just to round matters off, Creon's wife Eurydice has committed suicide meanwhile. *This* husband and father is more efficient than Laius!

Superficially, the play itself is largely concerned with the rival superego arguments of Creon and Antigone, and it has nothing like the emotional force or brilliance of the *Oedipus Tyrannus*, or even the fragmentary grandeurs of the *Oedipus Coloneus*. But it does raise an interesting last aspect of the Theban plays—the role of Creon, who survives everybody else and is the final beneficiary of all the Theban crimes. The character of Creon is drawn quite differently in the three plays. The first Creon (*Antigone*) is a superego-ridden old muddle-head; the second Creon (*Oedipus Tyrannus*) is represented in idealist fashion as an honest and competent minister; the last one (*Oedipus Coloneus*) in cynic fashion as an outright gangster. We may have here a specially revealing clue to the changing role and behaviour of a power group in Athens. But what are we now to think of the apparently paranoid ravings of Oedipus in the middle play? Is there, perhaps, a double bluff? Oedipus himself is the centre of the stage, and Oedipus is the instrument of Jocasta who becomes in the end wholly her puppet. But, lurking behind his sister, we may perhaps see in Creon (the word means 'the ruler') a trace of the other, more obvious aspect of the Athenian culture—that in the last resort, however the woman may try to exploit, the beneficiary will always be a man. These reflections will serve to show how lightly we have scraped the surface of a record of manifold family relationships in a context of property and exploitation.

The Oedipal Defence

The Oedipal defence in outline is the fantasy that one wants spontaneously to kill one's father and marry one's mother; the fantasy that Freud accepted as literally true—though it was with his usual uncanny faculty for abstraction that he picked out this fantasy as centrally important. It is a defence against recognition of the hostile attitudes of both parents, of the role of pseudosex in these, and specifically of a competitive attitude in the father and an exploitive one in the mother. Finally, it is a defence against recognition of that which they have projected upon one, and secondarily imposed as a compulsive fantasy—acted out, in the story of Oedipus. But the peculiar subtlety of the defence consists in its appearance as an apparent *discovery*, and above all in the main 'moral' of the play— 'don't explore, and above all don't explore the events of your own childhood'. The same 'moral' reappears in the corresponding play of Ibsen, *The Wild Duck* (where blindness and identification are also clearly connected). In each case, by a dazzling deception, exploration is made to lead to disaster, and the disaster serves as a warning to explore no further.

One girl patient, of whom mention has been made several times (see especially p. 293, for the interpretation of her 'sexual wishes' for father) was subject to severe learning difficulties at school, which her analysis considerably eased (Nicholson, personal communication). In several sessions, she spoke of a secret curtain, behind which lay things she was not supposed to see. Her glib association was to the notion of 'sexual curiosity'—she supposed she was afraid to see her parents engaged in intercourse. But as the analysis proceeded, she eventually spoke of seeing partially through a curtain of glass. As an association to this, she spoke of wanting to keep a pet snake. Her mother had a snake phobia, and regarded the girl's wish as sadistic. The girl had tried to reassure her mother by pointing out that snakes are not in fact slimy, as the latter assumed. The analyst had previously called the girl's attention to the child-serpent association mentioned in an earlier chapter (p. 214). It now transpired that the girl felt like a snake which had lost its original skin; she wanted to look behind the curtain at this forbidden object. She really wished, it emerged, to see what she herself was like before her parents began to mould her to fit their projections. The fantasy of keeping a pet snake disguised a wish to find out that she herself was not really as her mother saw her. Thus are self-explorations repressed by means of glib fantasies about prurient curiosity, projected and transmitted by parents.

The breaching of the Oedipal defence is often followed by a transient feeling of disillusionment, as though there was now nothing to be desired in life. One boy produced associations about Samson and Delilah —blinding brought about by an exploiting woman—and spoke of this as a means of avoiding sexual sights. Later in the session (as a result of much previous analysis), it dawned upon him that he did not really want his mother sexually. This was followed by a transient mild depression ('the trouble is I don't really want anything now'), strongly reminiscent of Hamlet's first soliloquy (cf. next chapter). Thus exposure of the parents' exploitive attitudes provokes a reaction to their competitive ones—a relapse into depression (p. 347). Both appeasement and depression must be analysed as a means to enable the individual to discover his own real wishes. But while the Oedipal defence remains, it constitutes a powerful means of fixation on the mother. This same boy said in another session that one could not choose one's mate because one could not choose one's mother—a perfect expression of the automatism governing and restricting choice of partner in adult life.*

Thus far we can take the Oedipal defence as a means of repressing the situation within a family, and in these terms we have a legitimate first approximation to analysis of the myth. But, as we hinted in the last section, this analysis by no means exhausts the subtleties of the *Oedipus Tyrannus*, to which we must return for a last glance. Without any attempt at a comprehensive treatment, two qualifications must be made. The first concerns the personality of Jocasta, whom we have so far treated as little more than a type of the exploited Athenian woman. In this treatment, she has inevitably figured as a cynic. But in the play she emerges with a clear personality; and it is the personality of an *idealist*. When this is taken into account, a different light is thrown on her actions, which are open to much the same interpretations as those of Oedipus himself. In acting for Laius against the baby, she experienced acute suffering, and in evading the worst consequences of the crime (by enabling the baby to survive) she may have expressed a horror of cruelty which must have been often aroused in an age of widespread birth control by exposure of infants. Her weakness lies in a pseudo-guilty acceptance of the crime as her own, which perpetuates her repression of the cynical hostility of Laius. Nor is she content to deceive herself, but must block the explorations of her son; and it is through her acceptance of the original crime that he

* See again Appendix 13; also now Appendix 14: Freud and his Theories.

finally turns upon her. She is thus the *implicated* idealist *par excellence* (p. 356).

In these new terms, the scenes with Creon and Tiresias take on a new meaning, and we notice the intervention of Jocasta when Oedipus is beginning to probe the politics of Thebes. Behind the two central idealists, we dimly sense a Theban power group, employing Creon and Tiresias (and sometimes the Oracle), and aiming at the destruction of the whole dynasty. To this end, in the emergency of the pestilence, they rake up the old murder of Laius; Jocasta, enmeshed in her pseudo-guilt, prevents Oedipus from exploring what really matters, by playing in her turn upon his own uneasy recollection of the fight at the cross-roads. Thus the two idealists are destroyed, and in the end the whole family. Consider again the sequence of Creons in the three plays (p. 391), and we are impelled to turn to the history of Athens. At the time of *Antigone*, the Athenian oligarchs were cowed and preoccupied with points of ritual etiquette; at the time of the middle play, they were backing the conventionally virtuous Nicias; by the *Oedipus Coloneus* they had engaged in rampant revolution against the democracy. When the middle play was written, the effects of the plague would be fresh in Athenian minds; so would the intermittent spiteful attacks upon Pericles whenever his popularity waned (as it did during the plague). Oedipus, too, was supreme by virtue of his popularity; but a power group is quick to take its opportunities. Thus the great playwright was able to observe his times, and yet to disguise his observations with such success that to the end of his life he retained the approval of oligarchs and demagogues alike. How much he disguised from himself we shall not easily discover. But a new theme emerges—the repression of public events by Oedipus and his mother through their family involvements; and perhaps the supreme Oedipal defence is the assumption that family relationships and the movements of society can be considered in isolation from each other. It is only when both are observed together that we can begin to unravel the complexities of human behaviour.

Shakespeare and the Prince of Denmark

If thou hast nature in thee, bear it not;
Let not the royal bed of Denmark be
A couch for luxury and damned incest.
But howsoever thou pursuest this act,
Taint not thy mind, nor let thy soul contrive
Against thy mother aught.

Ghost of Hamlet's Father

'Tis now the very witching time of night,
When churchyards yawn, and hell itself breathes out
Contagion to this world . . .
    . . . Soft! now to my mother.—
  heart, lose not thy nature; let not ever
The soul of Nero enter this firm bosom:
Let me be cruel, not unnatural:
I will speak daggers to her, but use none;
My tongue and soul in this be hypocrites,—
How in my words soever she be shent*,
To give them seals never, my soul, consent!

Hamlet, Prince of Denmark

'Why, look you now, how unworthy a thing you make of me! You would play upon me; you would seem to know my stops; . . . you would sound me from my lowest note to the top of my compass. . . . 'Sblood,

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* Rebuked.

do you think I am easier to be play'd on than a pipe? Call me what
instrument you will, though you can fret me, you cannot play upon
me.'

<div align="right">Hamlet, Prince of Denmark</div>

The Composition of Hamlet

We do not know for certain when the greatest of all plays was composed
and brought to the stage. The most authoritative pronouncements of
scholars on the subject are apt to be cautiously vague. Allardyce Nicoll,
for instance (1951), writes that 'the final *Hamlet* may have come very
soon after' 1599. It was certainly written before the death of Elizabeth I
and accession of James VI of Scotland to the English throne in 1603.
At one end, the only important piece of external evidence is the absence
of mention in a book (where the play must have been mentioned if
already produced) published in 1598. At the other end, there is a scholar's
note about *Hamlet* jotted down in a copy of another book published
in 1598. A jotting in the same place mentions the Earl of Essex in the
present tense. The Earl was executed on the 25 February, 1601. But we
are all liable to refer to the dead in the present tense, especially in such a
sentence as the one in question: 'The Earle . . . much commendes . . .'
a certain literary work. As we shall see later, there is a piece of indirect
evidence which strongly suggests a date *late in 1601*. This is not decisively
refuted by any external evidence, and if anything supported by the
most conclusive evidence of all: the play was entered in the Stationers'
Register (the rather ineffective method then used for establishing a
copyright), on 26 July, 1602, 'as yt was latelie Acted'. (For these facts,
cf. Spencer, 1948.) Suffice it for the moment that *Hamlet* was composed
about the turn of the century.

   The play, rich in every kind of enigma, survives in three different
texts (Greg, 1936; Spencer, 1948; Muir, 1957; etc.). The entry in the
Stationers' Register does not seem to have prevented piracy, for in 1603
there appeared a quarto edition which is generally agreed to have been
a garbled version sold to the publishers by an unscrupulous actor (the
First Quarto; 'quarto' and 'folio' are publishers' terms referring to book
sizes). Later there were two respectable but somewhat different editions,
a separate *Second Quarto* (1604) and the version in the famous *First Folio*
of Shakespeare's plays which we owe (priceless debt) to Heminge and
Condell, two actors of Shakespeare's company (1623). The splendid

speech partly quoted on p. 28 occurs only in the Second Quarto. (All Shakespearean quotations in our book are taken from the text of Arthur Henry Bullen, published by Blackwell in 1938.)

It is generally agreed (Robertson, 1936; Spencer, 1948; Muir, 1957; etc.), that *Hamlet* as we know it was based on a much earlier play, produced about the time of the Spanish Armada (1588), which may or may not have been written by the popular early dramatist Kyd. This play has not survived, but was in all probability based in turn on a story first to be found in the Danish writer Saxo, and current in Elizabethan times as one of the stories in a French book—Belleforest's *Histoires Tragiques*, published in the fifteen seventies. Shakespeare himself may also have referred directly to this book, which does survive. The story in Belleforest has been changed, if not out of all recognition, in Shakespeare's play; and we are in a position to specify many of these changes. In the process, it has been transformed from a simple saga of no special merit to the most action-packed story in all literature. There are thus two related problems to engage us in what follows: the reasons for Shakespeare's selection of the play he used as a model at this particular juncture in his career, and the reasons for the changes he introduced. Selection and transformation are so closely related behaviourally (cf. p. 172) that we have not seriously attempted to separate them in the following sketch. It is needless to add that in a short chapter we do not pretend to say the last word on a subject which has provoked thousands of books and articles. The last word will probably never be said, and we have tried only to open up some new lines for others to follow. 'Read him, therefore, and again and again', said Heminge and Condell of their author. Any excuse will serve for the pleasure of re-reading *Hamlet*, and we hope at least to have provided a new one.

The Unwilling Instrument

The character of Hamlet has been exhaustively probed again and again, perhaps more than that of any human individual who really lived. The great study of A. C. Bradley (1905) is typical of many of these analyses. We may not be doing justice to all the critics, but in general the Prince's problem has usually been seen in some such terms as: how is he to avenge his father, and why does he do this in so inefficient, disastrous and suicidal a manner? It seems to be generally taken for granted

that avenging the death of a father is a rational enough goal, or, more subtly, that it would in any case be considered so by an Elizabethan. But in examining any narrative or dramatic work, of whatever period, it is logical to begin by considering how anyone in the hero's position might act rationally, within the limits set by his environment. We can then see in what way his behaviour departs from such a procedure. In other words, what was the Prince's *own* position?

We are never given a clear idea of the laws of royal succession in Shakespeare's semi-mythical Denmark. In medieval England, Hamlet would have been his father's heir. The Scottish customs were more intricate (a relevant point, as we shall see later), and confused by the ancient principle of tanistry, whereby brother took precedence of son of the deceased monarch (Hume Brown, 1902). There is no indication in the play that Claudius could justify his usurpation in this way. But there is a general assumption that Claudius maintained his position in virtue, if not in right, of his marriage to his murdered brother's widow. From the outset, Queen Gertrude becomes inextricably confused with the throne of Denmark. This theme need not surprise us after the story of Jocasta and Thebes (cf. especially p. 382). And there was a specific instance, (as we shall see), to suggest to the poet's mind this expression of a fantasy familiar by this stage of our book. Hamlet *was* deprived by his uncle of the throne of Denmark, but so confused were woman and throne that the Prince diverted his resentment, and expressed throughout the play a violent jealousy of his uncle's possession of Gertrude. The irrationality is patent. His mother's remarriage was no concern of Hamlet's as such, while the loss of his kingdom was; yet throughout the play Hamlet is far more preoccupied by the former than the latter. This confused jealousy lays him open to the suggestions of his father's ghost.

The usurpation of the throne is not the whole of Hamlet's own problem. The recovery of the throne was virtually equivalent to his own *survival*. It needed no great penetration on the part of this intelligent prince to see that he was ear-marked for murder at the earliest opportunity. The discovery that Claudius was already a murderer might confirm this inference, but was hardly necessary. It could safely be predicted that Claudius would soon try to kill the rightful heir. The Hamlet of the play does in fact perceive that his life is in danger, and on this account adopts his pretence of madness, which he shares with the Hamlet (or Amleth) of Belleforest and the old saga. Before leaving

his mother after the famous bedroom scene, his last thought is to extract from her a promise not to reveal to Claudius that the madness is only simulated.

Faced with an imminent threat to his life, Hamlet has an obvious course of action. He must kill Claudius as soon as possible in what is, in effect, self-defence (like the murder of Laius; and cf. p. 478). The saga hero did proceed to take this course. The delay and difficulty in his case were due to practical obstacles. In the saga, it seems to have been necessary for him to win over his mother, and to outwit the usurper's guards. As soon as he succeeded in persuading the former and destroying the latter, he murdered his uncle at once.

But Shakespeare has gone out of his way to smooth Hamlet's path, and make this practical step simple and unhindered. Claudius is so ill-guarded, and the Danes so hostile to him, that Laertes has no difficulty in raising a riot and forcing his way, accompanied by a large crowd, into the Palace itself. Laertes is not represented as specially popular, whereas Hamlet himself is the people's idol, the one thing that prevents his uncle from openly putting him to death. It is made unmistakably plain that Hamlet has only to lift a finger, and enthusiastic crowds will do his work for him. He has also ample opportunity to kill Claudius personally, as is shown when he finds the usurper alone and in prayer; nor is anyone likely to object afterwards. There seems no *political* need to conciliate the Queen. That Hamlet fails to do the obvious has so bewildered critics that some of them have made excuses for Shakespeare, on the ground that he had to take over the conditions of the old play; yet, as we have seen, he goes out of his way to make the Prince's hesitation less necessary. English players were much in demand in Germany in the seventeenth century, and a version of the play acted there was eventually published in German in 1710 (*Der Brudermord*=The Fratricide). German audiences must have found the Prince's unpractical proceedings intolerable, for this version saves the situation by equipping Claudius with efficient guards. But it is precisely the elimination of practical difficulties that makes the play so great. For Hamlet's hesitations now show that he is not free to face his own personal problem and solve it on his own account. Edward III was a child when his mother and her lover murdered Edward II and seized control of England; the boy waited cautiously until his majority, and then took efficient action. Hamlet is represented as a brilliantly intelligent prince, certainly old enough to reign, and his mother as both vacillating and of no political

importance. Why can Hamlet not act for himself? Because he is impelled to act for somebody else.

The theme of exploitation, of using other people for every conceivable purpose, dominates the play. Polonius uses his daughter to trap the Prince (and later tries to use the Queen also), and sets a servant to spy on his own son. Claudius uses almost everybody, skilfully playing on the Queen, on Polonius, on Rosencrantz and Guildenstern, on Laertes, for purposes of his own. Although of course Hamlet and Laertes are not brothers, and he is not their father, Claudius's handling of Laertes is a study in the mechanism of provoking sibling rivalry (p. 262), of causing one child to redirect resentment from parent to sibling. The whole play supremely illustrates the sort of triangular and quadrangular exploitation relationships discussed in earlier chapters. Hamlet himself uses the players, and he and his uncle compete in using the Queen. But the ultimate exploitation, on which the whole play and the whole behaviour of Hamlet turn, is the exploitation of the Prince by his father's ghost.

It has been detected by Freudians (e.g., Sharpe, 1950), that the play splits relationship with a father into two parts, represented by Claudius and the elder Hamlet. We can now be more specific. Claudius, usurper of the throne and would-be murderer of the Prince, is Hamlet's *competitor*; the elder Hamlet (the real father, the Ghost), is Hamlet's *exploiter*, and this relationship becomes the more devastating of the two. Hamlet hates and fears the usurper, but in resisting the exploiter he is disarmed by sentimental rationalizations—he 'loves' his father. The Ghost's assumption of command over his son's actions is a typical blend of destructive criticism and seduction. He assumes, and transmits the assumption to his son, that the Prince *wishes* to avenge him. 'If thou hast nature in thee. . . .'

There is at this point a strong reminiscence of the Faust myth.* It is this link with the great central myth of modern Europe that in part accounts for the abiding influence of the play. Repeated associations connect the Ghost of the elder Hamlet with the devil of the Faust legend. When he first sees it, Hamlet believes the Ghost may be a 'goblin damn'd' with 'intents wicked', and his friends fear (all too rightly) that it may lure him to his death. Later the Prince's doubts recur, in a passage that might serve as a running commentary on the seduction scene in a version of the Faust story:

* See Appendix 10.

> *. . . The spirit that I have seen*
> *May be the devil; and the devil has power*
> *T'assume a pleasing shape; yea, and perhaps*
> *Out of my weakness and my melancholy,*
> *As he is very potent with such spirits,*
> *Abuses me to damn me. . . .*

This is his rationalization for obtaining indirect evidence of Claudius's guilt by means of his 'Mousetrap'—the staging of the play about fratricide. This train of thought on his part is interesting. So confused is he by this time, that he has forgotten his own highly rational suspicions, based on direct observation of Claudius's behaviour, which the Ghost's story merely confirmed. He is already involved in a network of repression and rationalization. He confuses the evidence of his own eyes and common sense with that of the Ghost, and must now resort to complicated indirect tactics of observation. Realistically, by now, it does not matter whether Claudius is already a murderer—he certainly intends to be one.

Even after the players and the King's reaction have set his doubts at rest, the theme of devilment recurs to his mind, as witnessed by one of the quotations at our chapter head—'hell itself breathes out Contagion to this world'—and that after 'churchyards yawn' and presumably give up their dead. The Ghost is to Hamlet what the Devil is to Faust.*

As we have just seen, the Ghost succeeds in superimposing on Hamlet's own observations its own account of Claudius's dangerous character. But the Ghost is in no way concerned about Hamlet's own safety. It (or he) is concerned only with revenge for his own murder. Hamlet is to be exploited for this purpose. A dutiful son, he is to carry out his father's plans and murder the usurper. The disaster for Hamlet is that this course of action *perfectly coincides with the solution of his own problem.*

The tragedy of Faust is the tragedy of intelligence, exploration and science entrapped in the acting out of irrational fantasies imposed by an exploiting devil. Hamlet, like Faust, is a student and thinker, if not a scientist. Above all, he is an exceptionally intelligent man, the most intelligent and almost the most attractive hero ever conceived. More than almost any other tragic hero, Hamlet has a real personality of his own. He still resents being given over entirely to serve somebody else's goals. He dislikes being played upon like a pipe. He cannot, indeed, fully recognize that he is his *father's* puppet. The remarks about pipe-

* See Appendix 15: Hamlet and Faust.

playing quoted at our chapter head are made to Rosencrantz and Guilden-stern, and the virulence of his feelings for these two insignificant puppets, which shocks Horatio, is the consequence of a redirection of resentment from the Ghost. Hamlet cannot shrug off his father's goals as no concern of his. He can only escape from executing them by proving the Ghost a liar, and therefore not really his father at all. He must therefore now try to disprove his own conjecture—that Claudius killed his father. The 'Mousetrap' defeats this attempt by proving the Ghost right. Hamlet is thus in an intolerable position: he can only save himself and Denmark by killing Claudius, but *to kill Claudius is to act out his father's fantasies.*

Hamlet thus illustrates the two-edged nature of parentally-imposed instructions. If they conflict with the individual's goals, they create one dilemma; if they coincide, they create another. Of course it is a fantasy dilemma. Of course the Ghost's fantasies are irrelevant—but not to Hamlet, and we are all in Hamlet's position. More specifically, Hamlet is a per-fect example of the *idealist*, who shrinks above all else from identifying with the parent, from fully accepting the role forced upon him. If this role happens to coincide with the sane and intelligent course of action, compulsive refusal of it brings just as much disaster to the idealist and all around him as compulsive acceptance of an inappropriate role brings to the cynic. 'The time is out of joint:—O cursed spite, That ever I was born to set it right!' 'To be or not to be, that is the question'. The idealist refuses leadership because it is confused with accepting the role of the exploiting parent. 'To be or not to be' a replica of the elder Hamlet, an instrument for the acting out of his aggression, 'that is the question'. Because he cannot recognize this, and yet struggles, because he cannot recognize his father's utter unconcern with his son's own personality as such, the only escape seems to be suicide, and even that is blocked at the stage of this great soliloquy—for Hamlet must not die until he has served his purpose, as, in the end, he does.

In his struggles to escape the identification forced upon him, Hamlet resorts, like all idealists, to irrational self-criticism. To prove to himself that he is *not* his father's son, he even at one point accuses himself of cowardice. And what makes for the play's supreme subtlety, in every soliloquy he doubles and redoubles upon his tracks in an orgy of ration-alization. Every variety of casuistry is enlisted to support now one, now the other side of his instinctive conflict. All his actions are in fact forced relentlessly upon him by his father's imposed instructions. The ultimate subtlety lies in the fact that his very procrastination, issuing from the

conflict, must only be a repetition of his father's behaviour. For we must suppose the elder Hamlet to have shown the greatest vacillation and delay, or he would have forestalled his own murder.

Sentimentality marks the complete surrender of the cynic. Hamlet indeed sentimentalizes his relationship with his father, but he is struggling against it; the conflict makes him, like all idealists, furiously intolerant of sentimentality in others. Instead of accepting it as evidence of their fundamental hostility and cynicism, he is provoked by it into explicitly violent action: the idealist always tends to act violently in the presence of *implicit* hostility. Laertes is Hamlet's cynic counterpart, and a constant object lesson. From the outset he has completely taken over the behaviour of 'Pecksniff' Polonius (as James Agate called him); he lectures his sister in the exact style of their father at the beginning of the play, and *he* has no hesitations about avenging Polonius, by devious methods which would no doubt have appealed to that devious old man. Hamlet despises Laertes from the bottom of his heart, and when Ophelia's brother begins to rant and maunder about her, Hamlet leaps into the grave and attacks him.

Ophelia introduces the play's final complexity, and the last twist of the web which completes Hamlet's enthralment. So far we have only considered the Ghost's most obvious injunction. But, for the elder Hamlet, more important than revenge for his murder is his consuming jealousy. The Queen is his property, usurped by another. Since the usurpation is in a sense, final, the Ghost must wish to destroy the Queen, and enlist Hamlet to this end. But there is a conflict in the mind of the Ghost himself. His urge to destroy the Queen is matched by a powerful veto on such action, together with an impulse to conserve this valuable property, and enjoy it vicariously through his son. When a parent is in this sort of conflict, we know the upshot (p. 258, etc.). The child is made to act out the destructive impulse, and the parent can then step in as punisher and forbidder. The child is made to play id, and the parent, his conflict resolved, can play superego. This course, with truly diabolical subtlety, the Ghost adopts—as is clearly shown by the first two quotations at the head of this chapter. He simultaneously implants in Hamlet a murderous feeling towards Gertrude, and forbids any expression of this. When a hypnotic suggestion is phrased negatively, the negative is usually ignored (p. 241, and cf. Baudouin, 1942). As the second quotation shows, the idea of playing the matricide Nero has caught on in Hamlet's mind. He has also been explicitly commanded to stop the Queen's marital

relations with Claudius. In the bedroom scene, he carries out his contradictory orders. He begins so violently that the Queen is terrified: 'What wilt thou do? thou wilt not murder me?' She utters a cry for help, and fortunately Polonius joins in. Hamlet, with heartfelt relief and almost gaiety, 'makes a pass through the arras', and 'Pecksniff' Polonius falls dead. It is a double re-direction activity (from both Ghost and Queen) and at this point the only solution of the conflict imposed on Hamlet by the Ghost. But the conflict is still there, and the imposed impulse to murder still powerful. Soon Hamlet is upbraiding his mother again with increasing violence, and the Ghost makes his last appearance in the role of her protector (cf. also p. 261).

This final conflict completes the whole involvement, and incidentally helps to motivate the rejection of Ophelia, also an object for redirection (cf. also p. 417): the Ghost is out to sabotage Hamlet's relations with women in general. Hamlet is obsessed with an apparent jealousy of his mother's new partner; this begins in the play before the interview with the Ghost, but we are to suppose that the father had brought his son up in a corresponding way. Why should Hamlet mind who goes to bed with his mother? It is his father's jealousy, imposed upon him. And the contradictory orders about Gertrude finally confuse the whole issue. The play becomes concerned with the problem of killing or not killing the Queen. Once she is dead, Hamlet's hesitation vanishes at last, and he can kill Claudius in a final outburst. It is the conflict within the Ghost's instructions that finishes off his son. The Ghost is more complex than the id representative Mephistopheles, and Hamlet is caught in a tripartite struggle between ego, superego and id. The convulsive conflict of the two latter holds him rigid, and prevents any freedom of action on his own account, or any clear insight into his own situation and needs. He shows an inevitable swing between superego—periods of utter inactivity—and id—violent, irrational and murderous outbreaks. Trapped in his father's problems, he has no time for his own, and in the end he dies. This account indeed by no means exhausts the role of his mother, to which we shall briefly return later.

Oedipus was made to act out his mother's fantasies, Hamlet his father's; each ruined himself. Yet *Hamlet* is a more exciting play than the Oedipus couple. Oedipus goes under, and identifies with his mother in the end. Hamlet dies. The idealist disaster is just as great as that of the cynic. But the idealist phase gives some scope for the real personality of the individual, and the Prince can at least cling to the dream of intelligent action, which

the Theban King eventually discards. It is the ultimate tragedy, that the very speech quoted on p. 28 as the key-note of the human predicament was made as a rationalization for emulating Fortinbras and his military adventures. Yet the speech is there, though it soon began to be cut in performance (it had disappeared by 1623, and does not occur in the First Folio). The dream of 'that capability and godlike reason' pervades *Hamlet* as it does no other work of human art.

'Look here, upon this picture, and on this'

In selecting the form of madness to assume, Hamlet chooses schizo-phrenia (p. 348). But in his unassumed behaviour, he shows a manic-depressive pattern, alternating suicidal depression and inactivity with manic outbursts, in which he acts in such a way as to cause, sooner or later, his own death (cf. p. 351). We have seen one aspect of this in the last section. We must now recall that this sort of behaviour is associated with a severe shock of (apparent) disillusionment (p. 352); and the impact of this shock, from the outset of the play, is one of the main themes. A shock of this kind is connected with change in the overt behaviour (and therefore apparently in the personality) of one parent. All Hamlet's complaints of change are directed against his mother. But we have seen that the relationship with father is split in this play, and it therefore concerns a change in the behaviour of *father* (cf. p. 353), as well as in the relationship between the two parents as a whole. The elder Hamlet is father before the change, Claudius is father after; and the famous speeches in which Hamlet contrasts the two may be seen as bitter re-flections on a single parent, made in the face of the other (mother). The presence of certain kinds of defecatory involvement (noted by Sharpe, 1950) fits naturally into this manic-depressive picture (p. 351).

We have now considered some of the main themes of the play—exploitation of all kinds through whole series of intermediaries, the person of mother as property, specific exploitation of son by father, idealism and the attempt to escape from identification, the triple conflict and the acceptance of father's conflicting attitudes to mother. It remains to add yet another undercurrent—the resentment of mother against father, and her possible implication in the murder. Almost every line of Gertrude's part proclaims her overt innocence of the murder, but there remains the role of the 'Mousetrap' player queen, and a lingering sense

of suspicion. The play thus begins that exploration of *mother*'s attitudes, which from now on was to engross Shakespeare more and more, culminating in the terrific directness of *Coriolanus*. Of this, a little more later.

So far we have treated the Ghost as a real person; it is now time to emphasize that he *is* a Ghost. Granted that the elder Hamlet brought up his son in a definite way, we may ask how his influence appears so potent after his death, and why Hamlet so fears identification with a phantom. There are several answers. First, both Claudius and Gertrude adopt towards the son all the attitudes they had expressed towards the father. We must next notice that this Ghost (unlike that of Banquo in *Macbeth*) appears to others besides Hamlet, and particularly to soldiers. We may infer that a formidable power group, which included the army, was pressing the Prince to murder Claudius, take over the kingdom, and then act as their puppet. It is this identification with the interests of a power group which Hamlet resists with all his might—'though you can fret me, you cannot play upon me'. His popularity was no better protection against this sort of exploitation than was that of Oedipus or Pericles—or Sophocles or Shakespeare, if they should be in demand for propaganda purposes. But Hamlet, like Oedipus, cannot master the political situation because he sees it only through the mists of his family relationships and is obsessed with a *past* event; he succumbs to the substance while he grapples with the shadow. A drastic upheaval in his family coincides fatally with a momentous change in the state of Denmark.

How did all these themes come together and take shape in the poet's mind, and can we in any way account for the unmatched richness of texture in this play? In the remainder of this chapter, we shall offer a few hints at the decoding of Shakespeare's experience, as he conveys it in this masterpiece of communication. We must begin with his environment at the time of composition, and the public concerns which must have been engaging his attention; this material in turn may be supposed to owe the exact nature of its impact on him to Shakespeare's earlier experience in his own family, and to this we shall turn last. In this way we can trace the presentation to his mind of many of the themes he employed, and much of the complexity of their interlacement; though no doubt we shall be as far as ever from understanding exactly how all this produced, not a second-hand melodrama, but *Hamlet*.

Shakespeare and James VI

On Saturday, 26 March, 1603, a young knight, Sir Robert Carey, was riding furiously from London to Edinburgh. Despite a bad fall, he arrived that night at Holyrood Palace for a long interview with King James VI of Scotland. He was the bearer, and had laid careful plans to be the bearer, of good news for the King. Elizabeth I had died on the morning of the Thursday, and Carey was able to salute the Scottish monarch as James I of England. James, who had been worrying about the succession for twenty years or so, was overjoyed, and made Carey a Gentleman of the Bedchamber—though later, with Stuart fickleness, he threw the new Gentleman to the wolves in the English Council, and Carey in the end reaped no personal reward for his romantic ride (Willson, 1956). Now Sir Robert Carey was the son of Lord Hunsdon, and Lord Hunsdon was the Lord Chamberlain, patron of Shakespeare and his fellow-members of the Lord Chamberlain's company of players (Spencer, 1948).

In the early seventeenth century, royal families were a more central feature of the political and social scene than at almost any other period of European history. The struggle with the old aristocracies was over, that with the new barely beginning. '. . . The dynasty was, with few exceptions, more important . . . than the nation. . . . For all practical purposes France and Spain are misleading terms for the dynasties of Bourbon and Hapsburg' (Wedgwood, 1957). These statements refer to international diplomacy, but the personalities and family embroilments of monarchs must have seemed no less central to the intelligent and in- formed private observer of current affairs. Everybody knew a great deal about the private lives of these royal individuals, and conjectured even more. Censorship engendered a curious dissociation between public eulogy and private gossip, typified by the two books of the Sieur de Brantome in the late sixteenth century. His *Vies des Dames Illustres* relates the edifying lives of a number of royal and noble ladies, many of them contemporary. Almost every one is described as 'chaste and virtuous'. His *Vies des Dames Galantes* is a much more entertaining account of the same ladies, who remain, this time, anonymous. Not one of them can be credited, by the widest stretch of sixteenth-century terminology, with the faintest pretension to chastity or virtue. Brantome's second book raises the difficulty of dissecting his own fantasies from those acted out by others in an age where pseudosexual acting-out was specially wide- spread. But the example suffices to show both the interest and the

knowledge of royal private lives current among alert observers of these turbulent courts.

We have seen that *Hamlet* was staged not later than 1602, and therefore before the accession of James I, who never visited England before he arrived to reign over it. But the urgent problem of the succession preoccupied everyone in the last years of the exceptionally long-lived Elizabeth; for failure to secure a smooth transition to another Protestant monarch would have meant chaos and both civil and foreign war. The negotiations by which Sir Robert Cecil smoothed the path of James were secret; but nobody as intelligent as Shakespeare could have failed to make a correct prediction by the turn of the century. He might therefore have been prompted to make keen inquiries about the potential new King, and there was plenty of material: English visitors were constantly returning from Scotland, many Scots were in England for this reason or that, and James himself had published books available in England by 1600.

Shakespeare himself had a pressing personal motive for interest in his probable new ruler. The dramatist's whole career, professional and financial, hinged on the attitude of royalty to the stage, already threatened by the Puritans. The players would be in a state of almost childlike dependency on a King whose support could alone protect them from the loss of their livelihood. Prospero (an excellent portrait of James, drawn later in James's English reign), might release Ariel from the knotted oak, but could all too easily send him back there if unsatisfied with his performance. (Prospero is indeed so dangerously close a portrait, that a contributory cause of Shakespeare's retirement may have been a weariness of grappling with the problem of censorship.) It was of the utmost personal importance for Shakespeare to inquire into James's personality, and reflect on the King's family history. We could safely infer this, even without the striking piece of indirect evidence provided by Sir Robert Carey's ride.

The attitude of James to the theatre was, in fact, complex. He patronized it more enthusiastically than Elizabeth herself, and Shakespeare's own company became the King's after the accession. But we may wonder whether James really kept the theatres open not because they gave pleasure to the spectators, but because they gave pain to the Puritans, his mortal enemies. He seems personally to have liked masques, and to have disliked long plays—like Polonius; perhaps, also like Polonius, he was for 'a jig or a tale of bawdry'. *Hamlet* is Shakespeare's longest play (as *Macbeth*,

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written later in James's honour, is one of the shortest); perhaps we can even imagine Shakespeare making hay while the last rays of Gloriana's sun still shone. But much more serious was the matter of political censorship, which at this period so largely concerned allusions to the monarch's family. Indeed this period provided a testing psychological situation for dramatists: the concern with royal families drove them on continually to explore those family relationships which are so much the stuff of drama, while the terror of censorship reinforced all the distorting mechanisms of the individual. Where James was concerned, the sore point was the behaviour of his mother, Mary, Queen of Scots, and the murder of his father, Lord Darnley.

Mary, Queen of Scots, was a typical masochistic cynic. A compulsive liar certainly, a nymphomaniac probably, addicted for a time on the pimp-like Bothwell (whom she no doubt tried to use in masochistic fashion), she does not seem ever in her life to have behaved intelligently, but acted out one instinctive fantasy after another (probably chiefly imposed by her mother, Marie of Lorraine—her very name shows with whom she was intended to identify). As Queen of Scots in her own right, Mary was fair game for anyone after the kingdom. The two famous events of her short reign, which culminated in her long imprisonment and final execution in England, were the murder of her secretary, the ex-choirboy David Riccio, and the murder, soon after James's birth, of her husband Darnley, followed in its turn by her abduction and marriage by Bothwell. The course of events in her brief reign was made up, on everyone's part, of nothing but instinctive antics and interminable lies. We shall not here attempt to explore the first murder, beyond recording a strong probability that the choirboy was pseudosexually interesting to Darnley rather than Mary, if not to both.[*] For our present purpose, irrespective of the facts, what is important is contemporary opinion. There was much gossip that James was really Riccio's son. 'Well might James be called Solomon, said Henry'. (Henry IV of France.) 'Was he not the son of David?' (Willson, 1956). The murder of Darnley was a curious one: the house where he was lying ill was blown up, but the body was found outside, apparently strangled—the murderers certainly wished to provide concrete evidence that Mary was now a widow. If we could expect even pseudorealism from any of these people, the obvious authors of the crime would be the Protestant Lords, who succeeded at one stroke in eliminating the Catholic Darnley, whom they

[*] See Appendix 16: The Murder of Riccio and the Murder of Gowrie.

distrusted, and framing the Catholic Queen, whom they hated. But it is rather more probable, and was certainly widely believed, that the famous correspondence between Mary and Bothwell (the Casket Letters) was genuine, and that Mary was rightly accused of instigating, and Bothwell of executing the murder. The popular theory must have been that Mary resented the murder of Riccio, sought to marry Bothwell, and killed two birds with one husband. Any reflections about James would lead Shakespeare at once to such associations as: a queen on whose possession that of a kingdom turned; and a queen instigating the murder of her husband in favour of her lover. The aura of suspicion around Gertrude begins to thicken.

James's own attitude to his mother (whom he saw only in the first few months of his life), was complex. He was brought up by male tutors supplied by the faction opposed to his mother. Of these tutors, the most formidable and influential was the Protestant historian, George Buchanan, who was described as 'extremely vengeable against any man that had offended him, which was his greatest fault'. Buchanan made no secret of his hatred for Mary, and on one occasion told his royal charge that he was a true bird of the bloody nest from which he sprang. James must have been imprinted with a hatred and suspicion of women, and with a command to avenge his father. There is an interesting picture at Holyrood Palace, which shows the boy king kneeling in prayer for vengeance on his father's murderers, with approving lords in the background. But the situation was involved. In later years, James oscillated between opposition to and support of his mother, now a prisoner in the hands of Elizabeth. He was chiefly concerned with his own succession, and bartered his mother for the throne, seeking promises of good will from Elizabeth by inactivity when Mary was executed. But he had an urgent incentive to protect Mary's memory, for on her behaviour hinged his own legitimacy, and hence his claim to both thrones. He was a vigorous censor of open criticism of his mother, a censorship enough to give any playwright pause. In 1596, James obtained an Act making it treasonable to slander the King's parents or progenitors, and at least two people were hanged at Edinburgh under the Act. In the same year, he objected to the sorceress Duessa in Spenser's *Faery Queen*, as a portrait of Mary, and asked Elizabeth to punish the author (Willson, 1956). Shakespeare would therefore have to be very careful. In the 'Mousetrap', or play-within-the-play produced by the Prince, the Queen's implication in the murder is much more unequivocal than in the play as a whole

(in fact Hamlet also uses the play to test Gertrude, who passes the test with flying colours). We may hazard a guess that Shakespeare, no less than Hamlet, was trying it on, and seeing how far he could safely expect to go under the new reign soon to begin. The play was the thing, wherein he would sound the acuteness and sensitivity of the censor king. Shakespeare himself doubtless had no wish to follow Hamlet's example—to fulminate against a Queen in order to act out half somebody else's conflict, leaving the latter to step in and act the other half by hanging him. Elizabeth did not hang Spenser, but the King of England in *Hamlet* was quite prepared to kill the Prince on Danish orders.

That Shakespeare had all these motifs in mind can scarcely be doubted in view of the content of the play, which teems with Scottish and Jacobean associations. The choice of Denmark was one such for a start. James married Princess Anne of Denmark in 1589. The couple first met, after their marriage by proxy, in Norway; presently they crossed the Sound to Elsinore, where they were received with festivities strongly reminiscent of the celebration of Claudius's marriage, with characteristic Danish hard drinking and volleys of ordnance. 'No jocund health that Denmark drinks today, But the great cannon to the clouds shall tell'. James wrote home on the subject of Danish conviviality, though in less inspired terms than those of the Prince of Denmark. (For an account of the marriage, see Willson, 1956.)

Among themes of Scottish history echoed in the play are the succession of brothers (p. 398) and the continually recurring motif of enmity between sons and fathers. The play ends with the accession of Fortinbras of Norway, and the union of two kingdoms—the event everyone was hoping for in 1601, which came to pass, as the union of England and Scotland under one King, in 1603.

James I and Elizabeth I

The character of Hamlet could not be based directly on that of James, for two reasons. First, there was the censorship problem. Second, there was the character of James himself, of which Shakespeare no doubt by this time had forthright Elizabethan accounts. James was an interesting but profoundly unattractive personality. He literally slobbered in public over his boy-friends, wrote letters of indescribable sentimentality, and is said never to have washed, but 'only rubbed his fingers' ends slightly

with the wet end of a napkin' (cited by Willson, 1956). It was impossible, even if safe, to create from such material a hero such as Shakespeare must have been beginning to conceive. In such circumstances, we see the interesting tendency of poets wishing to comment on contemporary events, and forced to superimpose upon their comment material from their own personality. In any event, Shakespeare must have interpreted the story of the Stuarts on the basis of experiences coded earlier. It is difficult not to feel that into Hamlet, the most interesting of his heroes and the only one deeply interested in the theatre itself, Shakespeare put much of his own personality. But interposed between these two layers was a third. The most interesting personality among his contemporaries was that of his Queen, supremely popular and unquestionably a genius —her command of language alone would establish her as such. Shakespeare could thus draw also on Elizabeth for his portrait.

The associations linking Hamlet and Elizabeth I are not far to seek. The Queen had an inveterate habit, like Hamlet, of jotting down notes (Morris, 1955). In her manic moments, she was very like the Prince. Sir John Harington, throughout a very uneasy interview in 1601, watched her 'thrusting her rusty sword at times into the arras in great rage' (Strachey, 1928; Morris, 1955). Elizabeth was quite exceptionally intelligent, and even behaviour forced on her instinctively was somehow turned by her to advantage. She is as fascinating a study in real life as Hamlet on the stage. But above all Shakespeare would think of her eternal delays, and of the supreme hesitations of her life, those concerned with the disposal of Mary, Queen of Scots and of the Earl of Essex.* Stuart and Tudor family threads came together at this point. And Elizabeth introduced a new strand for the complexity of the play. Her experience was the inverse of James's; her father had killed her mother, and for adultery.

Elizabeth displaces James altogether from the construction of Hamlet himself. James now appears in the play perhaps as Polonius and much more probably as Claudius. It was well for Shakespeare that James was in fact (because of his sentimentality) so much less astute than Elizabeth, who pounced rapidly on the least suspicion of literary impertinence. Claudius is given the famous lines: 'There's such divinity doth hedge a king, That treason can but peep to what it would, Acts little of his will'. Obsessed all his life with the divine right of kings, James had already published his first work on the subject in 1598 (*The Trew Law of Free*

* See Appendix 11.

Monarchies, see Willson, 1956). The usurper in the original saga was called Feng; the name Claudius may have been Shakespeare's invention. Many people have compared James with the Roman Emperor Claudius, and there is no reason why the comparison should not have occurred to Shakespeare (who was much more learned than is sometimes supposed— cf. Muir, 1957). But the portrait becomes unmistakable in the bedroom scene, where Hamlet contrasts his father and uncle—'Look here, upon this picture, and on this'. In this contrast, at one level, we may see a predictive comparison between the reign now nearly over, and the reign to come.

The contrast was indeed spectacular, and may well have preoccupied Shakespeare during his later years, after James's accession. But any well-informed person could have predicted it. When James first appeared in England, relief at the peaceful transition and Protestant succession outweighed all other feelings. But the English soon had matter for invidious comparisons. There was indeed a new age. The authors of *1066 and All That* wrote many a true word in jest, and their comment on James (though it telescopes the trial and much later execution of Raleigh), is worth quoting: 'James I slobbered at the mouth and had favourites; he was thus a Bad King. He had, however, a very logical and tidy mind, and one of the first things he did was to have Sir Walter Raleigh executed for being left over from the previous reign' (Sellar and Yeatman, 1930). Raleigh was not the only one to feel left over. Sir John Harington, poet and inventor, and a sort of Elizabethan Boswell, did more for the comfort —and how much else?—of modern man than many inventors: he produced the first water closet. Elizabeth saw the advantages and installed one at once. Harington had many interviews with the Queen. Often she made him shake in his shoes, but in other moods she laughed at his jokes and enjoyed his company; and he remembered her with the affectionate awe typical of Elizabethan responses to their Queen. 'When she smiled, it was a pure sunshine. . . .' Very different was his only interview with James I (after the accession), to whom he had sent a 'curious lantern' bearing the words 'Lord remember me when thou comest into thy Kingdom'. Elizabeth would have scolded him, or roared with laughter, or both. James received him in the atmosphere of a *viva voce*; he inquired much of Harington's learning, and 'showed me his own in such sort as made me remember my examiner at Cambridge'. 'Sir John', said His Majesty gravely at length, 'do you truly understand why the Devil works more with ancient women than others?' Poor Sir John

'could not refrain from a scurvy jest'. The King was not amused; he finally dismissed Harington with a promise that 'in good season I will not fail to add to your understanding in such points as I find you lack amendment'. (Strachey, 1931; Neale, 1934; Willson, 1956.)

Other courtiers noticed a more bodily contrast. 'We all saw a great change between the fashions of the court as it is now and of that in the Queen's time', wrote Lady Anne Clifford, 'for we were all lousy by sitting in the chamber of Sir Thomas Erskine', one of the Scottish lords (Willson, 1956). In these courts, wholly pervaded by the royal personality, there was a glaring change from the civilized vivacity of the one to the uneasy squalor of the other. How much of this Shakespeare could predict, we do not know. At the turn of the century, he must have been wondering, at least, how the change would affect both his livelihood and that cultural atmosphere so significant for a creative writer. In his later plays, there is a steadily increasing sensation of nausea, culminating in the revolting Caliban scenes of *The Tempest*. The first trace of this particular form of malaise appears in *Hamlet*. Something is already rotten in the state of Denmark.*

Shakespeare and his Family

John Shakespeare, the poet's father, died in September 1601. It seems sheer perversity not to connect this event with a play whose whole action springs from a father's death, and whose dominating influence is that of his Ghost. We have seen that the play must have been written between 1598 and 1602; there is no binding external evidence to prevent us from assigning the composition of *Hamlet* to a period when John Shakespeare was either dying or already dead.

The impact of this event must have fused together all those more public components we have so far studied, and we now come to the lowest level—Shakespeare's interpretation and communication of his most personal experiences. Unluckily, as everyone knows, the external evidence for Shakespearean family history is scanty in the extreme. This circumstance has permitted repeated attempts to deprive Shakespeare of his authorship in favour of Bacon, Marlowe, or the Earl of Oxford. We cannot now enter into the irrational motives for these attempts, which must often spring from an illogical expression of envy. The content of

* On Shakespeare and James I, see also Appendix 17: James I and Macbeth.

the present section alone should be sufficient to dispose of such theories, even if most reputable critics were not fully agreed that the Works of Shakespeare were written by their author.

One clue confronts us at the outset. In Shakespeare's teens his father, hitherto on the financial upgrade, began to enter a series of financial shoals; from then on, until William's success on the stage restored the family fortunes, John's life was 'bound in shallows and in miseries'. Nothing contradicts and some of the evidence supports a tradition that owing to the financial crisis William, nearly through grammar school and ready for the university, was forced to give up his further education, and work to help support the family. Thus in his adolescence Shakespeare's future was apparently sacrificed to his father's financial difficulties. Interpreting this in the light of earlier experience, Shakespeare must have felt intensely exploited by his father. We may recall Orlando's fury, in *As You Like It*, at being deprived of his education by an usurping brother. Shakespeare worked desperately hard for his father; his output was prodigious and his pages, as his editors noted, unblotted; in 1596 his efforts were crowned by the grant of a coat of arms to his *father*, on payment of a fee which the son could now afford. His father's fantasies may have merged insensibly in time with what he thought were his own wishes; when he finally achieved adequate prosperity at Stratford—doubtless his father's goal—he stopped writing, while still not old. We may owe in part to this involvement the premature end of the dramatist's career, since it must have sensitized him to later and wider influences (cf. p. 372). During his score or so of active years, he worked like a Trojan; he may have played himself out. From another point of view, the death of John may have released William from a burden: his greatest work began at this point (but cf. p. 375; for the facts used in this paragraph, see Spencer, 1948).

There are signs that the two events—the financial crisis and John's death—may have become confused in Shakespeare's mind, and that the latter served to reactivate his feelings about the former. The association may have been helped by the curious coincidence (noted by Muir, 1957, in a different context), of three inquests which William may have heard about in 1579, in his fifteenth year and at the time of the financial crisis. (A William Shakespeare was drowned while bathing in the Avon; a John Shakespeare of Balsall hanged himself; and a Katherine Hamlet was drowned accidentally in the Avon.) Claudius is linked with John Shakespeare by William's first portrait of a wicked uncle—King John.

Hamlet is obliged to return from 'school' at Wittenberg, not by a financial crisis but for his father's funeral and his mother's remarriage. Claudius is made to express what may have been the fundamental motif: 'For your intent In going back to school at Wittenberg, It is most retrograde to our desire'. The Queen joins in: 'I pray thee, stay with us; go not to Wittenberg', and Hamlet obeys *her*. We may wonder what part was played by Shakespeare's mother in persuading her son to give up his studies and start earning.

Here is an indication of a severe shock, the only direct clue to the manic-depressive material in *Hamlet*. We do not know whether John Shakespeare was manic-depressive, but we do know that in 1580 something happened which caused him to be bound over to keep the peace. From now on, we can only conjecture. Was there a drastic change in John's behaviour, and above all in his relationship with his wife Mary, at the critical time of Shakespeare's adolescence? The financial failure may have been a cause or a symptom; there was certainly an external factor, the collapse of the Stratford wool trade. All we can surmise is some shocking change in the family relationships, whether or not a consequence of financial trouble. When Shakespeare, years later, tried to write a play undisguisedly concerned with financial collapse (*Timon of Athens*), it seems to have aroused too much irrational emotion, and the play is a failure, falling apart into a welter of dreadful curses and almost psychotic hatred. There is one other clue. When Shakespeare was sixteen, his youngest brother Edmund was born. A quarter of a century later, when writing *King Lear*, Shakespeare chose the name of 'Edmund' for the bastard. We need not suppose that the real Edmund was in actual fact an adopted bastard, only that the relationship between his parents at this time was such as to suggest a fantasy of this. In any event, if shock there was in Shakespeare's adolescence, it must only have repeated, in compact form, more diffuse earlier experience.

When he was writing the play, it is impossible that Shakespeare can fail to have been influenced by the early death, five years before, in 1596, of his own young son, Hamnet Shakespeare. 'The coincidence of the boy's name and that of his father's most famous character is purely fortuitous', writes Spencer (1948). At this stage of the present book, we need offer no apology for rejecting such a view. The boy was no doubt christened (in 1585) after a close friend, Hamnet or Hamlet Sadler. But by that time Shakespeare could have read Belleforest; he could have had the fantasy of using his own son against his wife Anne (see below).

Whether or not this is true, he must have been influenced after the event in the choice of his play. It is generally agreed that one literary influence on *Hamlet* was Kyd's *Spanish Tragedy*, in which a father avenges a murdered son. We are left wondering how far William repeated in his rearing of Hamnet the exploitive relationship he had experienced with John. The one part we know Shakespeare to have played as an actor is that of the Ghost. This is conjecture; suffice it that in writing the play William was already organizing experience from the stand-point of two generations.

Of the marriage with Anne Hathaway, little again is known. It is certain that Anne was pregnant before her marriage, and her father died shortly before the wedding. There may or may not have been shot-guns or overt blackmail (cf. p. 197). The second-best bed left to Anne in William's will is just the sort of ironical comment we might expect from the most subtle writer who ever played with *double-entendre*.* There is nothing in the scanty story of Shakespeare's life to suggest that he loved Anne, and Polonius, who was obviously out to snare a son-in-law, may have had a Warwickshire original. Shakespeare also had a sister named Anne, the same number of years younger than he as he was younger than his bride. As all this material jostled with the royal associations we have earlier considered, the names would chime with those of Anne of Denmark, James's Queen, and Anne Boleyn, Elizabeth's mother.

Mother! We come finally to that enigmatic person, Mary Shakespeare, born Mary Arden. *Her* name would chime with that of the Queen of Scots, at the psychological core of the play. Of Mary Shakespeare we know only that she was an heiress—substantial property went with her, though part of this estate was lost in the financial storms. Of her as a person, we know nothing at all from external sources, but from the material in the plays we can conjecture about her with something approaching certainty. Orlando, deprived of his education, flees to the forest of *Arden*. But what reception would he get there? We have already seen Gertrude supporting Claudius's command for Hamlet to stay at home—and that it is Gertrude whom Hamlet obeys. Ophelia merely repeats the theme (as perhaps Anne Hathaway did)—Hamlet cannot trust her, for she is a docile pawn in the hands of Polonius. But in Mary

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* The widow inherited substantially without the need for mention in the will (Spencer, 1948), but that is rather beside the point. We may also notice that *All's Well that Ends Well*, directly concerned with a man forced and trapped into marriage, is almost as unsuccessful as *Timon*, no doubt for the same reason—it came too near the knuckle.

Shakespeare's case, who was really the pawn? The crucial play here is *Coriolanus*, which has proved too strong meat for many people. (Strachey, usually so perceptive, thought the hero was not a human being at all, but 'the statue of a demi-god cast in bronze'—1922; the actor Irving described the play as 'not worth a damn'—Spencer, 1948.) Certainly it needs superb production and acting. When these things are forthcoming, we can see what a play it is. Here Shakespeare came to grips with his relationship with mother, and this singleness of concern gives the play both its starkness and its terrific intensity. Volumnia, the hero's mother, makes her position perfectly clear. She urges her son to deceive and flatter the Roman plebeians in order to acquire power over them. This Coriolanus will not do—he is impelled to insult the plebeians, and make his intentions open. Volumnia psychologically deserts him, and he is exiled. He then makes his open military attack on Rome, but this Volumnia will not tolerate, and by compelling him to abandon the war she brings about his death. In this strong light we can understand Hamlet's desperate urge to make his mother see *and explicitly admit* the nature of her relationship with Claudius. This urge must have been the central preoccupation of Shakespeare. We may surmise that Mary was a masochist, determined to use her son in devious ways, and implacably refusing ever to side with him *openly*, or to sanction *open* defiance of his father on his part. Should he resist her instructions, and bring the issues into the open, she would abandon him without scruple. No masochist will ever tolerate an open statement of the exploitive situation, and Shakespeare was caught in the trap of eternally seeking to force an impossible issue. Underneath all, then, it was really his mother's sentimental fickleness that endlessly shocked him.

Much more could be said, but here we shall only observe that the supreme period of Shakespeare's achievement began at his father's death, and ended at his mother's in 1608. The second event was marked by the composition of *Coriolanus*. 'O mother, mother! What have you done? . . . But, for your son, believe it, O believe it, Most dangerously you have with him prevailed, If not most mortal to him'. After this play, we enter the last period (cf. Strachey, 1922)—a world of words without relationships, the sinister world of Cloten and Caliban. The candle guttered through to *The Tempest*, and in that last storm creative activity finally went out.

Cultural Evolution

Thro' the shadow of the globe we sweep into the younger day:
Better fifty years of Europe than a cycle of Cathay.
Alfred, Lord Tennyson

The Dissociation of Science and Art

The cultural equivalents or expressions of individual intelligence are
known as *science* and *art*, both of which are entirely concerned with
exploration and communication (cf. p. 131). The very fact that they now
have two separate names is an indication of something wrong, and we
shall have to consider the ways in which this social activity has become
dissociated. For there is no essential difference between science and art.
Leonardo da Vinci explicitly accepted the identity of the two, and such
a view would still have found plenty of supporters (and exemplars)
at the time when the Royal Society was founded. The artist indeed
originally had to be a scientist in practice; and if anyone wants to know
how an experimental scientist feels when a series of critical experiments
is drawing to a close, he is recommended to read the breath-taking
account in Benvenuto Cellini's memoirs of the casting of his bronze
statue of Perseus. Today many individuals combine both pursuits; but
the assumption of a fundamental difference is widely made, and finds
an echo in the irrational antithesis between scientific and what is called
'humane' education. The practice of any particular art or any particular
science requires intensive specific training or experience; but this is not
what we mean by being a scientist or an artist. The gap between the two
is not the only dissociation to emerge; a gulf is opening between both
and the rest of mankind. This view of themselves as a special race apart

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does not commend itself to scientists and artists, however rightly they may appreciate their own special talents and skills and creative experience. 'Man comes into life to seek and find his sufficient beauty', and if he seeks and finds it, be he Mr Polly or his creator, be he statesman or industrialist or technician or labourer or any other kind of worker, he is a scientist and an artist.

How, then, does the gulf open? We can ascribe it to that specific block on the exploration and communication of individual feelings and social relationships which has been the main theme of this book; it is here that the taboo lies, and the present forms of science and art represent diverging paths round the block—a long way round, for until they converge again neither will ever pass it. We can see the divergence begin precisely at the point when science began its explosive progress; this is what T. S. Eliot has described as a splitting of sensory experience and the computations of thought. Which way has each path led?

Science has found one priceless social device, the *operational* method, and it is on this alone that scientific progress has turned. Each scientist can tell every other what to do in order to see what he has seen, and so efficient has this communication become, that when his observation or experiment is repeated by others it is repeated exactly. In this way, others will soon know whether his vision was accurate or blurred or distorted. The individual scientist's explorations are limited by those conditions we discussed for the artist in Chapter 8 (p. 375). He is always both observing realistically and also building up a defence system. It follows that, as an individual, he is always fallible, the more so as his defence system becomes securely fixed. He will then soon begin to bias his observations in accordance with hypotheses which have become fixed prejudices. But the defences of individual scientists are not all the same, and hence, in the operational cross-checking, there will always be someone to refute an earlier inaccurate observation. So the development of a science can never long be in an unrealistic direction, before it is brought back to the right path by the negative pressure of refutation.

This is the great advantage of science, but in its present form it has grave limitations. The operational method works only negatively. It eliminates falsehoods from the record, but it does not suffice to ensure the rapid propagation of truth. Anything that has actually been published is open to social criticism; but nothing can avail against *omissions*. One of us (W.M.S.R.) once, from irrational motives, arranged some experimental results in the one way which would mask their significance

under statistical analysis; when the motives were explored, the error was at once detected, and the observations were seen to be highly significant (the experimental results are recorded in Russell, 1952). Had the mistake been one of commission, it would have been detected by others after publication; but scientists are not in the habit of publishing results which they believe to be purely negative, so the operational cross-check will not serve to bring repressed significances to light. Even when a new finding is actually published, its significance may long escape both author and readers. Chance (1957c) has given a spectacular example—the publication both by himself and others of certain critically important quantitative data. These data could easily have been interpreted at the time as evidence of a fact of great practical relevance in all kinds of animal experimentation, but they were completely 'unnoticed' until he himself, some years later, was led by other observations to return to these publications and re-examine them. His integrity in pointing this out deserves every appreciation. If more scientists would engage in similar re-scrutiny of their own work, the progress of science would be more rapid. In short, the operational method guards against delay due to positive error, but not against delay due to widespread repression. There is indeed a powerful device for avoiding the latter, namely, to *widen the scope* of an inquiry when it becomes sterile; but this device has barely been formulated as a *method*.

Delay in the progress of science is invariably connected with dissociation: the significance of observations made in one context fails to be noticed in another where they are highly relevant. In a study of the progress of the *methods* of experimental biology, for instance, nine examples have been noted of this sort of rigidity through dissociation (Russell, 1959a; Russell and Burch, 1959). In most of these instances, the dissociation could be traced to lack of communication between the various specific disciplines into which even sub-sciences are continually being split, as the field of human study enlarges. (Similar isolation may be observed also between the scientists of countries with different languages—Faegri, 1956.) Increasingly manifold division of labour is inevitable as the field of science expands; with this is connected a multiplication of special scientific journals. Bradford (1953) has shown that it is already impossible to retrieve from the vast mass of scientific literature *all* the information available on any one subject, however minute. This trend can be countered in two ways: by free intercommunication between specialists of different kinds, and by the development of a class

of scientists primarily concerned with synthesizing the results of a large group of subsciences. In this way, specialization can be checked and progress resumed (cf. Chapter 1). But the attitude of different specialist groups to each other is often far from communicative, as was specially clear in one of the nine instances just mentioned (for which historical material has been provided by Biggers and Claringbold, 1954). In this instance, specialists in one field were unwilling to trust a natural inference from *their own* observations because they believed, *quite falsely*, that it conflicted with the established findings of specialists in another field: no attempt at communication with the latter was made for several decades. Thus not only may one group fail to take advantage of the ideas and findings of another, but they may even, through embarrassment about approaching this other group, fail to take advantage of their own observations. All this comes about through the authoritarian notion that no specialist is entitled to observe or interpret anything that might seem the province—or *territory!*—of another specialist. Ultimately this is traceable to a craving for dominance hierarchies (cf. p. 163). In this way dissociations and rigidities arise in the organized activity of science as a whole which are precisely comparable to those in the behaviour of an individual male clawed frog (p. 46). The operational method breaks down through the myth that only the initiated can understand the operational instructions of a particular tiny group of sub-specialists (within which instinctive linkage may have begun—p. 180). The formation of these almost priestly hierarchies is favoured by the creation within each of innumerable jargon-words, so that building the Tower of Science becomes rather like building the Tower of Babel. We cannot do without such special terms as, for instance, redirection activity in behaviour study, but such terms should be as self-explanatory as possible, and should not be permitted to rise like barriers between the specialist and his fellows. It is a mark of the minor scientist to write jargon; and one of the favourite devices of those who would separate science and art is to compare great creative writers with minor scientists. They forget that there are plenty of very minor poets and novelists available for this comparison, and that Darwin and Huxley wrote English prose which few have surpassed.

But the most serious defect of science is the one we have already mentioned (Chapter 3, p. 130). All its successes up to now have been achieved in the understanding and control of matters *other than* human feelings and social relationships. With these it has barely begun to engage, but

with these it is rapidly coming face to face, and the upshot can only be a reunion of science and art.

For, if we now turn to the activity of the artist, the picture is reversed. The artist is almost entirely concerned with the exploration and communication of human feelings and social relationships. The nature-poet or the impressionist landscaper or the imagist or the abstract painter —all are concerned (though some have repressed this concern) with the communication of human responses to their ostensible subject-matter— or, as one of them said, with 'emotion recollected in tranquillity'. The dramatist, novelist, portraitist or operatic composer is concerned in addition with the communication of human feelings and responses in a social situation, and of the relationships between people from which these are generated. The artists have far outstripped the scientists in this adventure. In this book we have had to turn again and again to novels or plays or films. Samuel Butler knew more about behavioural inheritance than Freud. Shakespeare knew more about all aspects of human relationship than any psychologist. As we have seen (p. 373), the shortest cut to the solution of many behavioural problems is the analysis of great plays.* What, then, is the block on the artist?

Like the scientist, the artist is both exploring and also constructing a defence system. But the scientist is specifically concerned with the truth or falsehood of his observations; the artist is primarily concerned to organize his observations, and to communicate them in organized form. Often, in particular, he is concerned to make very fine and accurate associations between selected aspects of experience, as in the use of imagery and metaphor; whereas the scientist is, in intention at least, more concerned with the proportioned fidelity of his picture to the world it is to represent. These are differences in emphasis, and we can choose scientists or artists at any end of these scales. The crucial lack in art is the lack of an equivalent of the operational method of the scientist.

*We may quote here from the discoverers of the authoritarian factor (Adorno *et al.*, 1950, p. 971): 'There is a marked similarity between the syndrome which we have labelled the authoritarian personality and "the portrait of the anti-Semite" by Jean-Paul Sartre. . . . Sartre's brilliant paper became available to us after all our data had been collected and analysed. That his . . . "portrait" should resemble so closely, both in general structure and in numerous details, the syndrome which slowly emerged from our empirical observations and quantitative analysis, seems to us remarkable.' Of course, the achievement of the playwright and novelist does not mean that the work of the scientific team, with its copious operationally described observations, was in any sense wasted. On the contrary, it showed how the scientific method can be applied to problems formerly only approached by the artist.

There have never been developed scientific principles of artistic criticism, such as could be useful to the artists themselves, and by means of which each could coherently progress. Hence the progress of art has been by fits and starts. For, here as everywhere, a progressive step means one which opens a whole new horizon of possibilities, and such steps can only be made systematically with a perfected method of co-operation. Each individual artist has had to spend much of his creative life in the hard-won absorption of the achievement of his predecessors, as though he had a long trudge to reach even their view-point, before he could begin his advance to new vistas. The lack of steady progress is still more evident at the level of technology. Scientific inventions are steadily improved, and nobody would dream of accepting an out-dated technical device when an improved one was available. Yet articles are daily produced for common use as ugly as any since the dawn of mankind. It is not a question of mode of manufacture; there is nothing to prevent the mass-production of replicas of the most beautiful Greek or Chinese wares for our tables. The earliest tools of man were already beautiful, because they were simple and functional; his earliest idols were ugly. The two streams ran together when the functional was submerged even in tools, and encrusted with the anxieties and savageries of pseudosex. Our failure to remove this ugliness, and establish a progressive movement here, is rationalized by the fallacy that tastes can legitimately differ in matters of beauty.

And yet, as we have seen (p. 374), there are some principles valid for any work of art—principles of unrepression against repression, association against dissociation, communication against deception.* What is

* Other more special criteria may readily be derived from the ideas of this book. Great tragedy, for instance, is the portrayal of intelligence (including real sexual behaviour) overcome, not without a struggle, by instinctive and pseudosexual mechanisms in hero or heroine, or in the society to which they are exposed. Bad tragedy is the spectacle of conflicts between instinctive mechanisms, with no trace of intelligence from the outset. Great comedy is the exposure of instinctive mechanisms and rationalizations in both individuals and society, in such a way that they are seen to be incongruous, automatic and ridiculous. Finally, there is true drama, in which intelligence finally prevails.

Individual works may be examined on such principles. We might conclude, for instance, that *Aida* is great tragedy, since it portrays in wonderful music the vain struggle of two lovers to obtain happiness with each other in the teeth of the Egyptian hierarchies and the delinquencies of Aida's father. Or we could consider why *Antigone* is less successful than the later tragedies of Sophocles. We should notice that at least one character (Haemon) with gleams of intelligence is introduced, in a brief scene which gives rise to a great chorus about sex. And Sophocles lavishes on the play another wonderful chorus about the achievement of

now needed is a training in the perception of these differences, comparable to the training of the scientist; a training, in fact, in accurate observation of our own and others' feelings. For want of this, art too is reaching a point of crisis. Everywhere there is a desperate search for some really new form or mode; Picasso, surely gifted as few have been, has turned in countless directions in search of some new expansion of visual experience. Those less gifted have seized upon the small discoveries he has at every stage rejected as inadequate, so that he has left a trail of minor schools in his wake. None of them, and none of our other independent painters either, has achieved the real break-through. Much the same could be said of other arts; let it suffice that a genius of Picasso's calibre cannot find the way out, or the way on.

Thus science, by means of a special device of communication, has been able to explore progressively; art, by means of a special freedom of exploration, has excelled in richness of communication. The paradox is running out, and science now faces a block on further exploration, as art writhes in search of some new freedom of communication. Many of us hoped that the new form of science fiction was the longed-for opening.

The history of science fiction has been outlined in countless anthologies, and we need not attempt to resume it here. The fanciful may trace it back through Conan Doyle and Jules Verne, through *Frankenstein* and *Rasselas* as far as Lucian or beyond, if they choose, to the *Birds* of Aristophanes. The genius of Wells provided a model rather than founded a school. The emergence of a whole group of writers was to occur in the thirties, through the medium of a number of American magazines (initially technical, later restricted largely to the stories themselves). Nearly all the writers were or had been scientists. By the late forties, the leaders in the new genre—Asimov, Clarke, Heinlein, Simak and the rest—had produced a considerable output of brilliant work. The stories

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man (from which our opening quotation is taken). Yet this chorus is ironic in a play mainly taken up with a squabble between rival instinctive mechanisms over the fate of a corpse (p. 391); beneath this quarrel the realities of the Theban situation are buried more deeply than in the *Oedipus Tyrannus*. We may perhaps feel that Sophocles was groping here towards a form of comedy; and indeed he introduces something very like a comic character, in the person of a worried guardsman.

By equating all human behaviour with its instinctive automatisms, Freud has done a temporary disservice to literature, though he only crystallized a tendency already in evidence. By becoming aware that this is a fallacy, writers will cease to brood over human pathology, and through such a liberation they will more freely relegate instinctive mechanisms to their proper place—as the *obstacles* to real human adventures.

were often used as testing-grounds for imaginative new scientific conceptions, and their predictive power was illustrated by the famous story which so accurately described top secret developments in atomic physics as to raise the alarm of a security leak. The old masters and some new ones write as well as ever, but in the movement as a whole a certain set-back is evident. There may be several reasons for this. One, perhaps, is the intensification of the problem of censorship. Another is the irruption of writers who are ill-acquainted with scientific methods; their work suffers as seriously as that of any fiction writer unfamiliar with the subject of his fiction. Such dilution is incidental to the expansion of any art-form. But the most fundamental block has been precisely that we are considering in this section. For science fiction, if it is to open the new way, has to come to grips with human feelings and social relationships. And in the new imaginative endeavour of predicting outside the restraining magic circle of human automatism, science fiction is still groping. While new themes of human relationship are lacking, all the old infantile fantasies flood back into the vacuum. Meanwhile technological progress and cultural change are proceeding at such a pace that accurate prediction makes increasing demands on the imagination. Already the forecasts of the early writers about space travel, derided for so long as wild fantasies, are being realized even more rapidly than predicted; many of these writers, of course, played other active parts in the process. Truth has regularly moved faster than fiction. The complexity of our present situation almost baffles prophecy, and most of the simpler extrapolations have already been explored (though Clarke, in *The Deep Range*, hit on a new one as recently as 1957). It is hardly surprising if the movement is at pause, but we cannot regard this set-back as final or inevitable. It is through some such medium as science fiction that the solution must come, for the only possible outcome at this stage of human progress is the re-fusion of art and science in the exploration of human behaviour.

With this re-fusion must come a reunion of both science and art with the life of man. Human behaviour—feelings and relationships—is the one subject which every human individual can explore every day, and the one subject about which every human individual can more and more freely communicate. It is to such ends that this book is addressed. There will always be individuals specially expert with numbers or machines or paint or music; but if we are to progress, the time must approach when everyone is a scientist, and everyone an artist.

Specialized and Progressive Cultures

We have already introduced the notion of a culture (p. 193). It is the mode of organization of a group of people which is maintained continuously in time by means of behavioural inheritance; just as a species of animals is preserved as a unit by the continuity of genetic inheritance. It now remains to consider in what ways cultures may vary.

A culture, like an individual brain, can be regarded as an evolutionary machine. As such, it can proceed in two directions. It can specialize until its functions are fixed and automatic; or it can remain progressive, continually increasing in complexity of structure and variety of behaviour (cf. Chapter 1). If we consider a culture at a point of time, it may be more or less complex; this tells us how long it has been progressing, for even a culture that has reached total specialization may be highly complex if it has *previously* remained progressive for a long period. In this way we can distinguish *savage* (=simple) and *civilized* (=complex) cultures; but a savage culture may be progressive, and a civilized culture may be specialized. Our own European culture-group, including its representatives on other continents, is a progressive civilization.

But the cultures of man are not isolated from each other. The prodigies of communication and literal exploration achieved by the progressive cultures have already brought about a situation in which only a few human cultures, in such remote fastnesses as the South American jungles, are still isolated from contact with others far more complex. Moreover, once science and technology have appeared, the complexity of cultures may be considered in terms of definite historical stages—in terms, for instance, of industrialization. And these quantal stages may have considerable implications for other aspects of a culture. We must remember this in what follows.

Let us now consider what is meant by a savage and specialized culture. It is with such that the anthropologist has so far largely dealt—190 of them, for instance, are listed by Ford and Beach (1951). Here fall, for example, the Indian tribes of America, the Negro tribes of Africa, the islanders of the Pacific. What are their characteristics?

The most obvious contrast between these cultures and our own is the relative uniformity, within each of them, of patterns of overt sexual behaviour. This is well brought out by comparing the Kinsey reports on overt sexual behaviour in the United States with the extensive review by Ford and Beach (1951) of overt sexual behaviour in savage cultures.

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In the progressive civilization of the United States, almost every possible variety of pseudosexual perversion of sexual activity and sexual relationship can be found in some individuals. But in each savage culture one particular pseudosexual mode of behaviour is almost exclusively present in all individuals. (This impressive contrast is not invalidated by occasional gradations.) Thus the Trobrianders are mutually sadistic; during intercourse the man and woman bite and scratch each other, and tear each other's hair, so that 'it is a great jest in the Trobriands to look at the back of a man or a girl for the hallmarks of success in amorous life' (Malinovsky, 1929). Such mutual sadism is only one of many overt sadomasochistic patterns found in American and European couples. Again, in some savage cultures (Dieri, Gilyak, Hidatsu, Lesu, Masai, Toda, Yapese), adultery is habitual: 'Men and women in these societies are free to engage in sexual liaisons *and indeed are expected to do so* [our italics] provided the incest rules are observed' (Ford and Beach, p. 113). Other savage cultures specify the type of adultery—e.g., with siblings-in-law (the Siriono, *ibid.*). Ford and Beach list eighty-five savage cultures which prohibit adultery in a mated woman; a few of these also prohibit it in a man. In the progressive civilizations every conceivable variety of restriction or compulsion may be observed in particular individuals where extra-marital relationships are concerned.

In short, in each specialized savage society, there is one single masturbation fantasy common to almost every adult individual, so that overt pseudosexual behaviour is restricted to one definite mode; whereas in the progressive culture-groups every possible kind of masturbation fantasy is present in some individuals, and there is correspondingly wide variety in the pseudosexual behaviour and pseudosexual relationships of the individuals in the society. It is not that the individuals of the progressive culture tend in general to show real sexual behaviour (much less is this true of any savage culture, as some dewy-eyed people would have us believe), but that their pseudosexual behaviour is more varied, so that no one masturbation fantasy takes command of the whole culture. For the fixation in a culture of one masturbation fantasy is the last step in specialization, and, after this, progress to greater complexity can only occur as a result of interference from outside.*

* The totalitarian state is an attempt to impose total specialization on a society which has become relatively complex. It is characterized (as Orwell noted in *1984*) by savage repressive laws designed to restrict overt sexual behaviour and make it more uniform, as in a specialized savage culture. This is done either by restricting sexual relations between races or classes, or

From the masturbation fantasy (cf. Chapter 6), there radiates a complete prescription of all forms of social behaviour and organization. The automatisms of the individual are expressed in compact form when he masturbates or engages in essentially masturbatory activity (often taking the overt form of intercourse) with another individual. Similarly, the automatisms of the specialized automatic culture are expressed and reinforced in more or less elaborate social *rituals*, which in turn are moralized by more or less infantile *myths*. The myths and rituals are common to a whole specialized culture—contrast the variety of beliefs and practices in Europe or the United States. In some savage cultures the process of moulding the individuals into uniform conformity begins in early childhood. But in almost all of them the crucial process is the *initiation* ceremony to which the individual is exposed, significantly (p. 286), in *adolescence*. At such a ceremony, a sort of communal acting-out of the common masturbation fantasy, he is instructed in the tribal rituals and myths, under circumstances likely to eliminate once and for all any slight deviations in his own masturbation fantasy from that of the culture. Every kind of hypnotic device may be used in this ceremony, but the commonest is the infliction of intense pain and/or fear, and the infliction may be greatest on those individuals most likely to deviate. Thus Haddon (1901) describes the initiation ceremony of the Mabuiag islanders: 'The good boys were let off very easily, but a naughty one might be speared in the hollow of the knee by a stick armed with the spine of a sting-ray, or scraped with the rough, spiny skin of a ray, or be beaten about the

by making all but a few of its overt forms criminal. The two modes of restriction are closely related (as appears in the authoritarian scale, p. 332 ff.), and in such a society the position of anyone deviating from the overt sexual norm is very like that of a member of an oppressed minority.

The history of the Roman Empire affords a good example. Under the later Republic, Roman law was becoming increasingly civilized and progressive, with a tendency to remove sexual deviation from the scope of criminal law. Augustus began to reverse this trend at Rome, but for some time the Empire remained a federation of culturally independent groups. The really totalitarian trend began with Aurelian, who fittingly ushered it in by destroying the great library at Alexandria, repository of ancient civilization (see Bushnell, 1947). Under the later totalitarian emperors (Diocletian, Constantine, Theodosius, Justinian) the whole Empire was increasingly dragooned into uniformity, and at the same time the criminal laws against mating between classes, and against variations from a narrow sexual code, became increasingly cruel and comprehensive (Bury, 1958; Cochrane, 1940). Under Constantine's laws, a girl could be tortured to death for pre-marital intercourse, and if her *parents* shielded her they 'were punished by deportation—a signal instance of totalitarian interference with parental behaviour (cf. p. 194).

ears and elsewhere with the nests of green ants, who bite ferociously, or chastized with wasps' nests.' The details of the initiation ceremony itself, including the modes of influence by which it is made effective, are of course dictated by the communal masturbation fantasy; widely different varieties may be found *in different cultures.*

As long as such a culture is isolated, and there is no climatic or other environmental change drastic enough to destroy it (for its specialization makes it readily liable to extinction), its automatisms are fixed, and it is virtually an assembly of puppets. Since every individual has the same ready-made defence system, there will be little or no individual exploration; art will be stereotyped and formal, and science can never arise. In their dealings with the world of nature, such savages will simply project the details of their masturbation fantasy, casting deities or demons for family roles, and bullying or appeasing them as if in a relationship with celestial parents or other relatives. Sometimes the personification is dramatized with the help of human actors—priest-kings, rainmakers and the like—who are tortured or compelled to remain in the immobility of depression, in the hope of inducing them to modify the environmental conditions. Such fantasies persist even today in the progressive cultures in the fossil form of verbal clichés, as when scientists are said to be engaged in the 'conquest of nature' or to 'sacrifice' their experimental animals (p. 245).

When the savage culture is exposed to the incursion of civilized explorers, and the other representatives who follow them, the result will depend upon the degree of specialization the savage culture has reached. If it is totally specialized, the new conditions will literally destroy it, as in Tasmania. If it is relatively unspecialized, it may be able rapidly to participate in the progress of the civilization that has impinged upon it, as in the case of the Maoris of New Zealand. In most instances, the result is intermediate. As long as the culture remains separate from but in contact with the impinging civilization, the latter must inevitably control the course of events (whether or not there is a military conflict. This prediction can be derived from a fundamental principle of Ashby, 1950: Russell and Russell, 1957). The behaviour of savages suddenly hurled from the Stone Age into the Atomic Age is a subject of great interest, but one which poses serious practical problems (Mead, 1956; Mead, ed., 1955). There are two pathological interactions which may at once take place unless carefully controlled. First, one or more of the power-groups in the civilized culture may seize the opportunity for economic

exploitation; second, attempts will be made by particular sub-cultures of the civilization to export their myths and rituals as a form of ideological exploitation. The savages' greatest danger has been from societies dominated by superego, sentimentality and censorship, eager to exercise rationalized cruelties far from home.

The Decoding of Myth and Ritual

In the decoding of myth and ritual, we can proceed much as in decoding the output of the individual (Chapter 8). Myth and ritual are distorted representations of the earlier experience of the society as a whole.* Thus the Garden of Eden myth, apart from its significance for the individual (p. 214), may be seen as a coded form of the history of a savage pastoral people (the Israelites) brought into contact with an agricultural civilization (the Egyptians)—the explicit theme of most of the first two books of the Old Testament. The serpent was an Egyptian symbol; and the first result of such a contact must have been exploitation of the savages by the controlling Egyptian economy. (Ombredane, writing in 1957 of the Asalampasu natives of the Congo, asks—we translate: 'To what extent can the Asalampasu suppose it to be for their happiness or wealth that they are obliged to cultivate cotton in their woody territory, when cotton brings its native cultivator an average of 400 francs a year, even if we ignore the taxes he has seen levied on him, and when it is necessary to cut back the forest for the benefit of the cotton?'.) Hence Adam and Eve, driven from Eden, are obliged to work in the sweat of their brows. For such savages, the serpent of new learning would seem an evil thing—and perhaps, as the story of Exodus suggests, the Israelites were learning Egyptian techniques too fast, and aroused the alarmed envy of their masters, who took measures to press them into

* The interpretation of myths has passed through three phases (compare the case of individual fantasies—a genuine analogy—p. 269). At first, they are treated as simply true. Later, they are treated as simply false. This view was shaken by the work of that remarkable man Schliemann in the last century. Schliemann felt convinced that the poems of Homer were in some sense factually true. He devoted his life to making enough money for his purposes, and then dug up Troy and Mycenae. Evans in Crete brought another myth to life (perhaps several: for Crete may well be that bull-ritual-ridden island of Atlantis which Athenians overthrew in Plato's story, apparently by undermining the native cults). We can now see that myth is *coded* history, though the coding is sometimes far more elaborate than in the myths of Greece, as myths come to be used more and more for moralizing purposes (p. 109).

slavery. In later generations, there would be a division into 'collaborators', absorbed by the agricultural civilization, and die-hards, striving to perpetuate their pastoral culture—the farmer Cain and the shepherd Abel (compare Cain's identification with the expelling angel—p. 263). When triumphantly restored to overt independence, the Israelites would make Cain the villain. It would be a matter for intriguing research to explore the relations between social modes of competition and exploitation (e.g., the origin of slavery) and the modes of interaction of early human cultures with animals, plants and nature in general. Needham (1956) has pointed out, for instance, that Jehovah was a natural deity for shepherds, accustomed each to command his flock.

As the generations pass, a culture may come to regard its early history with a horror and distaste comparable with that of the individual for his earliest experiences and actions. Hence the superego coils of repression, distortion and dissociation which beset the more complex myths in the course of time. Thus there is some reason to believe that the early Egyptians practised cannibalism (cf. Edwards, 1947; Cottrell, 1950); skeletons of dismembered bodies with gnawed bones have been found. Cannibalism is a very ancient human practice (Oakley, *apud* Grinsell, 1955); but we may suppose it to have been specially prevalent when a culture first made the transition to agricultural life. At first, there would be uncontrollable droughts and famines, and the food-supply would have periodically to be supplemented by cannibalism. Later, we may suppose, cannibalism might remain as a ritual, practised by the more conservative even after more efficient methods of agriculture, irrigation and food-storage had rendered it superfluous. At this stage, perhaps, the relatives of the victims may have been permitted to reassemble the dismembered bodies and bury them. Eventually, the wastefulness of the periodic unnecessary slaughters would lead to revolt and the ascension of new power groups. The overt cannibalism would disappear, and individuals who practised it would be outcasts. The culture would now seek to repress its earlier history through horror at a practice which it now repudiated; hence that history would be preserved in the distorted form of a myth, analogous to a fantasy in the individual reflecting in distorted form his own early experience and actions. In some such terms we can understand the complex mythology of the worship of Osiris. This god was married to Isis, and had a son Horus. Osiris was murdered by Seth (the Egyptian Satan), who usurped his throne and scattered the parts of his dismembered corpse. Isis raised Horus to avenge his father. They

overcame Seth, and reassembled Osiris, who thenceforth reigned in the underworld, as Horus reigned above. There was a tradition as late as the Greeks that the cult of Osiris had disposed of cannibalism. Seth remained the devil of the Egyptian religion.

This leads to an interesting consequence—the definition of a *criminal*. There must be few activities regarded at one stage as criminal which have not, at an earlier stage, been part of the ritual activity of a whole culture. But as some delinquent overt acts are dropped from the culture's repertoire (even in ritual form), the individual delinquent becomes a criminal. The criminal is simply out-of-date, and in this sense the early criminologists were justified in speaking of 'atavism'. When a cult is replaced by a new one, its gods become devils (like the outlaws listed in Milton's Nativity Ode): a devil is a fallen angel. But the past delinquencies linger on as the unconscious id of the new culture's structure, maintained in its individuals through behavioural transmission, and some individuals may revive not only the now criminal acts but the myths that moralized them (though with a change in flavour due to their changed cultural status). Hence the witch-cult of Europe, and the practices of the Mau-Mau, in which every ceremonial ritual exactly reversed the superego ceremonial of the Kikuyu tribe as it is today.

Individuals and Groups in a Changing Culture

This definition of the criminal may serve to introduce some general discussion of the relations between individual behaviour and cultural conditions. Here we must always be careful to remember whether we are describing the behaviour of an individual in absolute terms or in relation to that of his culture.

In absolute terms, any trace of automatism in behaviour may be described as neurotic or psychotic, for the fully intelligent individual will be totally free of automatism. Automatism may further be considered as either of predominantly id or superego nature. The id is a perversion of, and is substituted for, the individual's wishes for himself; the superego is a perversion of, and is substituted for, his plans for realizing these wishes in a co-operative relationship with other people. Now in principle, there can never be the slightest clash or discrepancy between the interests of two or more intelligent individuals; the optimum behavioural solution for each will be the optimum for all. But the superego, as an

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expression of parental competitiveness, entails behaviour by the individual against his own interests; while the id, as an expression of parental exploitiveness, entails behaviour by the individual against the interests of others. Conflict may readily arise between superego and id, and the usual result is a compromise more or less deleterious both to the individual and to others. It is on account of these mechanisms that so many arguments have arisen about the 'rights' and 'duties' of individuals, and the problem of arbitrating between them—a problem that would be meaningless in a society of intelligent individuals. Thus a ruler or state may come to stand for co-operativeness, a faction or demagogue for individual freedom; thus the authoritarian can purport to champion the claims of society, the revolutionary those of the individual; for both superego and id can be sentimentalized. The Roman oligarchs, when proclaiming martial law to maintain their powers, instructed the consuls to defend the common weal (p. 257); the Jacobins, when guillotining everyone in sight, claimed to be expressing the rights of the individual. In general, we can describe any behaviour by the individual which harms himself as neurotic in the strict sense, while any behaviour which harms others may be called delinquent. But whichever element predominates, the neurotic is always in some way delinquent, and the delinquent in some way neurotic. For only intelligent behaviour benefits oneself, and only intelligent behaviour benefits others.

In absolute terms, we are all to some extent both neurotic and delinquent. The delinquent is only called a criminal if his behaviour differs in a delinquent direction from that currently adopted in his culture (p. 324). Similarly, the neurotic is often called an *overt neurotic* only if his behaviour differs in a neurotic direction from that currently adopted in his culture. It is for this reason that we have on the whole avoided the ambiguous word 'neurotic'; for to many this means simply 'abnormal', where the norm is that of a culture or sub-culture. If the individual, in building his defence system, can find a culture that conforms to it, he appears 'normal', and will not be labelled as 'neurotic'; we may think of him as an *adjusted neurotic*. His unrealism will become obvious in a changing culture-group as he grows old and his particular sub-culture begins to disappear; this is one reason for the current crop of overt neuroses and even psychoses in the aged (p. 124). They are in much the position of an over-specialized species of animal faced with sudden and drastic environmental change. We need not for a moment fall into the error of supposing that what is normal in any existing culture is healthy or desirable—no automatism

is ever such. The young overt neurotic is often one who is too intelligent to accept easily any available sub-cultural defence system. Here again Freud showed his accuracy of observation and his theoretical confusion. He was right in supposing that overt neurosis was connected with creative activity; but of course the creativeness is not due to the pathology, but to the individual's own intelligence, and the clashes within his family or culture which prevent the ready establishment of a defence system.

Similar care must be taken in the definition of insanity. Anyone who entertains proconscious delusions is obviously to that extent insane; in this sense every exponent of any dogmatic ideology is mad. But if we are thinking in such absolute terms, we must go much further. Anyone who proconsciously entertains *any* fixed prejudice of any kind is, to that extent, mad. Complete sanity would be an accompaniment of complete intelligence, and would mean that no idea whatsoever was maintained in any but a provisional way, and that any idea whatsoever would be subject to correction by experience, computation or imaginative insight. Absolute criteria are therefore not immediately helpful. They might lead us to the complacent observation that almost everyone in Ancient Egypt was mad, but the same observation could equally be made of all of us in a few centuries' time. We have therefore employed the notion of psychosis (Chapter 7) only in connexion with extreme instability of personality.

As for overt neurotic symptoms, including those of bodily illness and proneness to accident, they are a joint product of individual automatism and cultural conditions. This fact is beginning to be recognized at a practical level in industry (cf. Owen, 1956). For instance, a whole outbreak of digestive disorders, insomnia and depression in the telephone operators of a certain large exchange was traced to the conditions of their work. In another investigation on sickness rates in groups of industrial workers, it was found that particular supervisors, when shuffled around, took their sickness rates with them.

At the same time it must be emphasized that such cultural pressures are becoming, in the more progressive modern civilizations, less intense and widespread than they have ever been in history. The freedom of the individual, political and economic, is greater than it has ever been. As a result, individual automatism and breakdown, which could hitherto be ascribed to economic or political conditions, have been *unmasked*. Where, for instance, poverty is present, neurotic or delinquent behaviour

can always be ascribed to it; but we find no saner behaviour among the wealthy: 'The rich', said Scott Fitzgerald, 'are different from us'— 'Agreed', remarked Hemingway, 'they have more money'. The standard of living of workers in most civilized countries is far higher than it was in the last century, yet we do not on that account see a golden age of popular sanity and intelligence. The removal of extraneous compulsions has been, and still remains, a most necessary step; but it is patently not the last step, as long as individual automatism is maintained by behavioural inheritance. It is precisely the fear of unmasking intrinsic compulsions that serves as an important motive for retaining external ones, for, as long as reforms are delayed, all disturbances of behaviour can be ascribed to external conditions. To take but one instance of the changing situation, marriages used in most classes and cultures to be overtly and explicitly controlled by the parents or other relatives of the mating couples. Individuals are now free to marry whom they 'choose'. And it is just when the choice is freed from direct extraneous control that we see how largely restricted and compulsive it is, and how in one way or another it is still controlled indirectly by parents, through the automatisms they have imposed on their children. Since divorce has become, at the same time, less prohibitively difficult, the failure of most people to exercise real freedom of choice in mating is unmasked still more completely, for the high rate of divorce shows overtly and unmistakably how many of them admit regretting their 'choice'. Thus the increase of political and social freedom, and removal of direct cultural reinforcing control, has laid bare for our inspection—and ultimately for our control—the underlying mechanism of behavioural inheritance.

A word may be said at this point on the nature of *revolutions* (cf. also). Disturbances such as the Glorious Revolution of 1688 are not true revolutions; they act only to preserve the continuity of a progressive culture (though as long as cultural evolution remains outside our own control they also establish a new power group—in that instance, the English Whigs). True revolutions may be defined as violent *discontinuities* in cultural development, analogous to hysterical dissociation in the individual. Some, like the Fascist revolution in Spain, are directly and obviously concerned to put the clock back. Others are ostensibly concerned to favour a progressive technological change. But, fundamentally, *any* revolution is a reactionary event. Apparently progressive revolutions are always made in the name of some technological change which was coming anyway. Sometimes they retard it, sometimes they

slightly accelerate it. But if technological change and its social repercussions occur in a continuously developing culture, they necessarily involve an increased rationality of the culture, and a decline in the culture's mythological content. A revolution is a means of accepting technological change *without* this beneficent social accompaniment. Instead, a revolution always substitutes a new myth for an old one; it creates a new cultural superego. It always and necessarily entails an increase in the *moralism* of the culture. The old mythology, instead of being integrated as harmless pageantry, is *repressed*, and remains as a cultural id (cf. also p. 355). A truly progressive culture integrates continuously, dispensing more and more with fantasy—just as continuous integration occurs in an intelligent individual. Constitutional monarchy was one of the greatest of political discoveries, and typifies such a process.* Every country that has been subject to revolutions pays for them in an ever-increasing luxuriance of moralism. Even the relatively mild English Puritan revolution has left scars (correspondingly mild) such as the English Sunday and the English licensing laws, which can readily be traced back to the Puritan strand in English history.† Those countries which have suffered more violent revolutions have suffered more heavily.

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* A constitutional monarchy, as permanent and impartial representative of the people, also of course plays a most important part in a system otherwise made up of two parties. This is widely recognized; it could be deduced from the principles of Chapter 5.

† Apart from the Civil War, the English (and *later* the British) have shown an extraordinary capacity for avoiding revolutions, and a well-grounded distrust of revolutionaries. Where two alternatives appeared equally unpleasant, they have always tended to choose the legitimate side until something suitable turned up. This must have been a quite automatic application of the principle, which seems to be true, that overtly revolutionary extremists are an even greater disaster than legitimate ones. An excellent example is afforded by the reign of James II. When the Duke of Monmouth rose with his Puritans against James, not a single nobleman joined him, and Churchill (later the Duke of Marlborough) easily crushed the rebellion. Three years later, when a moderate combination and legitimate substitutes were lined up and ready, James was expelled almost bloodlessly (from England); hardly any nobleman remained on his side, and Churchill deserted him at the head of an army. Thus one unclean spirit was neatly exorcised *without* letting in seven more deadly ones. Something rather similar occurred in the reign of Mary Tudor. It would be of the utmost importance to determine the cultural properties which have this salutary effect, and tend to avoid government by cynics for more than short periods. Even after the Civil War, there occurred what we can only call the un-revolution of 1660, without foreign pressure and (in England) without bloodshed. England escaped the usual legacy of a revolution—a fixed written constitution; and her political forms, like her common law, were free to evolve as progressive mechanisms. This flexibility was later to be extended to the development of the Commonwealth.

After each convulsion, the remedy becomes more difficult; but the remedy must always take the shape of continuous reform, and in this context a hair of the dog that bit you is an increasingly fatal prescription.

Every time a revolution occurs, the idealists mixed up in it are deluded into thinking that the revolution is a deliberate, rational step forward, planned and executed on intelligent premises. Nothing could be further from the truth, for any revolution is a totally automatic social process, however much it is rationalized. Failure to realize this means failure to cope with the results of the revolution in a rational manner, so that the worst is made of a bad job. Insight into what has happened, even after the event, can at least mean that an end is put as soon as possible to the wasteful and pathogenic processes it has unleashed.

Few have seen this more clearly than Thucydides, who devoted a chapter of his great history to a cool analysis of the automatisms of revolution. His was the first attempt before H. G. Wells's *Outline* to approach human history as a problem in biology. The biological approach is apparent in every chapter of the history, and there is good ground for supposing that Thucydides was in touch with the great Hippocratic school of biological thought (cf. Cochrane, 1929). It is this that accounts for the extraordinarily modern flavour of much of this product of the fifth century B.C.

Cultural Hybridity and the Reforms of Cleisthenes

The formation of the individual's own defence system is only possible on condition that the influences of his two parents can somehow be blended into a compromise defence, which will enable him to meet the exploitive demands of both. The ease of production of the resultant defence varies in different families. If the parents form a well-knit, composite front, the child's mode of behaviour and defence system can readily be formed. But the demands of the two parents may not be so easily squared. If the problem set is too hard—for instance, if the demands of one parent are too incompatible in themselves—the result may be psychotic breakdown on the child's part. The most interesting situation arises if the problem is neither too easy nor too difficult. The child must then work out a mode of behaviour and a defensive fantasy system adapted to two conflicting cultural environments—living with mother and living with father; both conditions must be satisfied at once. (A similar situation

can arise if the child spends much of his time with, say, members of his family other than his parents.) In these circumstances, rationalization cannot take place automatically, and there must be some preliminary real exploration and imaginative effort. The position is rather like that in the monkey colony at the dawn of intelligence, when the first rudiments of the intelligence system were evolved to meet the challenge of equilibration (p. 141). The end-point of this exploration is the completion of the defence system; but this specialization will take time, and while the defence is being organized much true observation and imagination will take place. We have examined this process in detail in the work of the great dramatists (Chapter 8). At the present point, we must notice the fact that exploration of this kind is a consequence of fundamental *differences* between the masturbation fantasies, and hence between the cultural heritages, of the two parents. In the context of behavioural inheritance (just as in that of genetic inheritance, if for different reasons —cf. Lerner, 1954), *hybridity* brings life, variety and progress in its train.

When adult individuals of two different cultures or sub-cultures meet, the encounter must initially give rise to cross-purposes and mutual misunderstanding. Each will have a different set of unconscious premises, and for each certain expressions or gestures will be releasing stimuli for particular different automatic reactions. Such interactions have often been the subject of comedy—for instance, the encounter of Fluellen with MacMorris in *Henry V*. At first, communication will be seriously impaired, even if both participants are speaking the same national language. What the one says will mean something quite different to the other, and vice versa. If two such individuals are obliged to meet each other a great deal, the outcome will be one of two things, according to their effective intelligence levels and the incentives for communication. Either they will be mutually irritated to the point of violence, or they will be forced, in order to communicate, to explore some of the prejudices and compulsive releasing mechanisms on both sides. In the process, each party's defence system will be breached, and each will be obliged to explore. Thus in suitable conditions the close association of two individuals of different cultures will lead to enhanced realistic exploration, and the exposure of one individual to two or more cultural environments will prevent the establishment of a stable defence system.

On a grander scale, the interaction of two or more whole cultures (provided it is sufficiently prolonged and continuous, and provided one

neither destroys nor totally absorbs the other), is the natural condition for the rise of science and the flowering of art and the progressive cultural change which these introduce. As long as this hybrid interaction persists, the formation of a specialized culture is impossible, so that the condition for progress is the maintenance of great cultural variety under circumstances which prevent any one cultural pattern from eliminating the rest.

Many illustrations could be given of this cultural hybrid vigour. Great creative individuals have often sprung from border provinces exposed to two cultures. Pledge (1939) has prepared some instructive maps, which show the sites in Europe of great outbursts of scientific activity at different periods—the regions where leading scientists were born or spent their working lives. These nuclei of activity have usually been located in very recently liberated or united countries, such as Holland in the seventeenth or Germany in the nineteenth century, where the formation of a new national *cultural* defence system was in its initial, exploratory phase. But perhaps the most striking illustration is the case of the Jews. The most stable specialized civilization in human history was that of Egypt, the only one to persist for more than three millennia. The Jews are the cultural heirs of Egypt, in a different and more comprehensive way than the Athenians. Their hero-lawgiver Moses was culturally an Egyptian, who was brought up as such. (His semi-mythical story of exposure and adoption is clearly the Jewish version of the Oedipus legend. But the many stories of heroes reared away from home—Cyrus, Theseus, Perseus, Romulus—must have some basis in fact.) Much in the Jewish culture can be traced to Egypt (cf. p. 431); including in particular its phenomenal *stability*. No other culture-group in Europe has persisted unchanged for so long. In behavioural inheritance, the Jews thus form the analogue of an inbred line kept up for occasional crossing with other lines. In every generation, *some* Jews have become culturally more or less merged with a non-Jewish society—or several—and thus exposed to a particularly intense cultural clash. It is thus that we can account for the disproportionately large contribution of Europeanized Jews to the arts and sciences of Europe.

Everyone knows of the marvellous flowering of Athenian civilization in the fifth century B.C. It is therefore a matter of interest how this city and the surrounding territory of Attica was organized, as a result of reforms carried through a generation or so earlier, at the end of the sixth century. We have already encountered the first Athenian political

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genius, Solon (p. 380); we now make the acquaintance of the second, and perhaps the more original: *Cleisthenes*.

Cleisthenes was in control of Attica immediately after the removal, first of the autocratic Pisistratid dynasty which had seized the state since Solon's reforms, and next of the quislings imposed by Spartan intervention. His most urgent problem was that of dealing with the fierce conflicts between the three regional (and hence occupational) parties into which Attica was split, those of the coast, the city and the inland country. The almost incredible sophistication of his solution has been underlined by the appearance—in 1955!—of a book by the anthropologist Gluckman, based on studies of African cultures, in which are put forward precisely the principles which Cleisthenes employed, nearly 2,500 years ago, to deal with this internecine conflict. His reorganization was as follows (Bury, 1913; Thomson, 1946; and, for some other achievements of this genius, see Wade-Gery, 1933).

The whole country was already divided into between one and two hundred *demes*, or small regional groups; and hitherto it had been in terms of the demes that the whole structure of social and political life was organized. Cleisthenes divided all the demes into three larger regional groupings—the coast, the city and the country. In each such region, he assembled the demes into ten groups called *trittyes*, so that in the whole country there were thirty such trittyes. Out of these thirty, he formed ten groups of three trittyes each, which he called ten *tribes*. The brilliant feature of his scheme lay in the composition of these tribes, for each was made up of *one trittys from the coast, one from the city, and one from the inland*. Once employed in this way, the trittys itself retired into obscurity. It 'had no independent constitution . . . no corporate existence, and consequently it appears little in official documents. But it was the scarce visible pivot on which the Cleisthenic system revolved' (Bury). The whole political organization of the country was now reorganized in terms of the ten tribes, each of which was a corporation, with officers, assemblies and corporate property, and each of which contributed an infantry regiment and a cavalry squadron to the Athenian army. That the system could persist effectively was due to the employment of the old demes, natural geographical groupings, as the basic units, 'which he did not attempt to reduce to a round number'. At the same time the new scheme cut right across the three-fold division of the large regional groupings. 'By its means, a number of groups of people in various parts of Attica, without community of local interest, were brought together at

Athens, and had to act in common'— for the electoral system and the administrative council and magistrates were all based on the new tribes. Meanwhile the deme remained as a smaller corporation. Thus every Athenian in the following generations, throughout an extremely active social and political life, was subject to two distinct loyalties and pressures —local and tribal—and was thus the more free of either.

The reform succeeded almost immediately in disposing of the strife of the three old factions. It is sufficiently remarkable to credit Cleisthenes, as most historians have done, with deliberately aiming at this, on the lines now indicated by Gluckman. It is barely conceivable that he foresaw, in addition, the explosion of progress which, on our principles, we should expect from this cultural double exposure. Yet it is difficult not to see his reforms as at least in part responsible for fifth-century Athens.

A country, or similar grouping, which is culturally variegated, will naturally be more receptive to the impact of other countries and their cultural atmospheres; conversely, a country of extreme cultural uniformity will be resistant to ideas from outside and intensely hostile to other countries; hence extreme national uniformity is dangerous both within one country and for international relations. It is true that the Athenians jealously guarded their citizenship from foreign contamination, at first as a legacy of Solon's property laws, and later as a corollary of the exploitive imperialism of Pericles (who, however, hardly practised what he preached, for while opposing marriage with aliens he himself lived with the intelligent and gifted foreign courtesan, Aspasia). Indeed it was this exclusiveness which was to prove the downfall of the short-lived Athenian Empire, whereas in contrast the extension of Roman citizenship and even magistracies to provincials by Julius Caesar and Claudius prolonged the life of the Empire of Rome (which began to have provincial Emperors before the first century A.D. was over). Nevertheless, fifth-century Athens was exceptionally hospitable to foreigners, and Thucydides, in the great Funeral Speech he ascribes to Pericles, draws attention to this open house policy, contrasting it with that of the Spartans—who every so often drove out every foreigner from their country. It is noteworthy how many great Athenians were of partly foreign extraction—for instance, Thucydides, Euripides and Aristotle. This circumstance too, perhaps even more directly, contributed to the Athenian miracle. It was a strange but intelligible fact that the victor of the Eurymedon had a foreign mother; and as for the victor of Salamis, we may cite the verse quoted by Plutarch: (trans. Arthur Hugh Clough)

> *I am not of the noble Grecian race;*
> *I'm poor Abrotonon, and born in Thrace;*
> *Let the Greek women scorn me, if they please,*
> *I was the mother of Themistocles.*

The Cycles of Cathay: China and India

The complex cultures of North and South America were so specialized as to be totally extinguished by the arrival of European invaders; the civilization of Japan, geographically the Eastern equivalent of Britain, is a curious and special case which we shall not attempt to consider here. Apart from these, and from cultures of intermediate complexity, we may think in terms of three supreme human civilizations: that of China, that of India, and that complex of civilizations—the phrase contains the whole heart of the matter—in the Middle East, North Africa, Europe and, for the last three centuries or so, in America and the other scenes of European colonization—what in sum we have called the civilization of Europe. The two civilizations of the East are alike in attaining a complexity which makes them altogether different from the savage cultures mentioned earlier in this chapter, *without*, however, giving rise to systematic science, the guarantor of indefinite progress (until, in this century, they began to assimilate it from the West). This failure is rendered the more remarkable, in the case of China, by certain other facts. The Chinese civilization is nearly as old as the whole European complex (except for its oldest stable representative, Egypt), and the Empire of the Han was an elder contemporary of that of the Caesars. Science and technology may take two overt forms. On the one hand they may show *empirical* progress: that is, discoveries of practical utility are made by experience in a dissociated way; whereas on the other hand the progress of systematic science is based upon a unified and integrated system of hypotheses, which develops in exactly the manner of integration in the intelligent individual. Empirical and systematic science may be aptly and accurately compared to the explorations of the individual before and after adolescence (p. 219). Empirical science can proceed surprisingly far, but sooner or later reaches an end-point, since its techniques tend to be rationalized by mythical ways of thinking. The progress of systematic science is, in principle, unlimited. The failure of China to develop systematic science, which got under weigh in the West in about the fifteenth and sixteenth

centuries, is the more remarkable in that at about that period Chinese technology was far in advance of that of the West (Needham, 1954, 1956).

If we are to understand how and why science developed in Europe, the civilizations of the East provide us with an invaluable perspective; they supply what experimentalists call a perfect *control* for the natural experiment of European progress. The civilization of China is so complex that it can suitably be compared in general terms with our own, and if we can find some key differences we may be able to detect precisely what in European history prepared the way for the development of science.★

This fact has been appreciated by a man of unusually versatile gifts, Joseph Needham, and his seven volumes on *Science and Civilization in China* will prove an indispensable contribution to such an inquiry. The two volumes so far available (1954, 1956) already provide a wealth of suggestive fact and hypothesis. We cannot in a page or two do more than a travesty of justice to his work, but we may glance briefly at one of his central ideas—the role of law in China and the West.

Since the Empire of the Han (founded 202 B.C.), the ideas of the Chinese were dominated by a profound distrust of codified legal systems. By contrast (as we have already seen), legal codes have been an outstanding feature of the Western complex. Let us, for instance, return to Athens, a little while before the reforms of Solon. The common people of Attica suffered grievously under their early aristocratic rulers, for want of any codified system of laws. Since the rulers were also judges, and since they could, on the spur of the moment, declare anything punishable and punish it, the people were in rather the position of the population of the Spanish Netherlands (who were universally condemned to death by the Inquisition and the King of Spain, so that any could be executed at any time). The people of Attica, driven to desperation, obliged the aristocrats to appoint one of their number, Draco, to draw up a code. The resulting laws were so murderous that they were said to be written in blood, for trivial thefts were punished as heavily as murder. But the result in due course was a movement to change them, which gave Solon part of his mandate.

The savage culture deals with the inanimate, plant and animal environment in terms of its own social interactions (p. 430). Much the same can be said of the more complex conditions we are now considering. When

★ The following paragraphs have been influenced by an interesting discussion with Dr. M. R. A Chance.

society is organized in terms of a legal code which transcends individuals of any dominance status, the position of the subject changes. He no longer operates in terms of appeasing individuals, but in terms of exploring the law to find its regularities; he can then shape his life in such a way as to promote his interests as far as the laws will permit. And the next step will be a readiness to *change* the laws. It was in just these sort of terms that science was first conceived—for instance, by Newton. Providence had laid down laws, and if we could understand these we could control the natural environment. Eventually, the appearance of observations conflicting with previously stated natural laws might lead to their modification, and thus science is well under weigh.

To this it may be added that European science began in the special context of non-social, non-human phenomena—the study of stars, gases and so forth. The natural scientists could feel free to proceed under the impression that they were not in any way challenging the permanent laws which Providence had made for *human* relations. It seems that this was a necessary stage, for reasons which may appear intelligible after the first section of this chapter (p. 420 ff.). We may perhaps partly ascribe to the work of Socrates the failure of the Greeks to set science on a firm basis. For this genius began prematurely to ask questions about human behaviour, before a disciplined mode of procedure (especially the operational method) had been fully developed in the 'safe' context of physics. As a consequence, instead of starting a science of human behaviour, he started the rationalizing activities of the philosophers who followed him, while arousing (or intensifying) in his fellow-citizens a distrust of any kind of scientific attitude. It was necessary to make the detour first.

The Socrates of China was not executed. On the contrary, Confucius (who shared with Socrates a complete indifference to the non-social sciences) was destined to stamp the whole civilization of his country. The Chinese, too, had their Draconian code—the plethora of laws produced by the Legalistic politicians under the short-lived Chhin dynasty which first unified China, and which was overthrown by the Han. The Chinese oligarchs had a perfectly clear conception of the dangers of codified law as an encouragement to the rise of democracy. In the very century of Solon and Cleisthenes, a Chinese classic describes the inscription of penal laws on iron cauldrons in one of the feudal states into which China was then divided. 'Confucius said, "I fear that [the state in question] is going to destruction. If its government would observe

the laws which its founder prince received from his brother, it would direct the people rightly. . . . Now the people will study the laws on the cauldrons and be content with that; they will have no respect for men of high rank"' (Needham, 1956, p. 522). Unfortunately, the Legalists and the Chhin were overthrown, not by a reforming party, but by a line of powerful Emperors. The discontent with the Draconian Chhin codes was adroitly used to further the ascension to power of the Confucian bureaucrats, who retained it for millennia afterwards. Confucius was not, like Socrates, a scientist working prematurely, but the exponent of an ingenious set of ideas designed to ensure the continuity of a single power-group, dedicated to extreme conservatism. The rule of the bureaucrats was made permanent under the Han by the remarkable system of public examinations. These were open to any men of ability, and the diabolical persistence of the bureaucratic class lay precisely in its completely open method of recruitment. The examination system itself, a sophisticated version of an initiation ceremony, ensured that all recruits would have properly conservative attitudes and preoccupations. The quirks of behavioural inheritance will permit the appearance of atypical individuals in an oligarchy of birth; but an ideological oligarchy is deadly. Flexibility in administrative detail likewise provided against revolt and desperation, while preserving almost intact for millennia an extremely complex pattern of society.

This bureaucratic way of life, the polar opposite of Western legalism, was fatal to science. The Chinese saw their non-human, natural environment as a similarly organized bureaucracy. Their deities were organized in complex hierarchies; prominent in the celestial framework were their own ancestors and those of their Emperors; and the dead hand of the past lay heaviest of all on this mighty civilization, in which each generation was taught to revere its parents and grandparents and remoter ancestors. In such a system, there was no place for the study of natural laws and their manipulation, and progress of any radical kind was seen as an impious impossibility. Thus the rise of systematic science was impossible. In particular, the Chinese thinkers could not over-simplify; they could not pass through a stage of science dominated by the artificial but necessary study of non-biological systems in isolation. Their world was human through and through. Curiously, but intelligibly, this almost schizoid view-point was not inimical to the development of the visual arts, so dominated in China by biological motifs; and in some of the visual arts the Chinese have had no peers.

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So far we have deployed, in concentrated and somewhat modified form, some of the hypotheses of Needham. But these hypotheses raise further questions. How was it that this cumbrous bureaucratic automatism retained its control through so many centuries in a huge country in contact with many neighbours and which was, again and again, conquered and overrun? To this we may attempt a tentative answer, which depends on the geography of Eastern Asia. All the extraneous cultures to which China was exposed—the endless waves of pastoral Huns, Mongols and Tartars—were simple and savage ones, which had nothing to contribute themselves. Genghis Khan, for instance, could think in no terms but those of war and destruction; a heroic mandarin was able to prevent him from depopulating and ravaging a huge Chinese province, solely by the argument that its revenues, if left intact, would finance more extensive and devastating war elsewhere! When cultures as simple as this conquer complex civilizations, they are inevitably absorbed, as happened in turn to all the conquerors of China. The last, the Manchu, were the most complex, but only because they were already partly Sinized in advance; their first Emperor was the most Chinese of all rulers. Despite occasional suspensions of the examination system, the bureaucracy was always there to administer China for the conqueror, who could not possibly do it without them; and thus the authority of the bureaucrats and traditional scholars was never opposed throughout the history of their civilization by any cultural influence that could possibly compete with it.

In India, we seem to see the exactly opposite development. If in China the influx of variety was far too low and slow (cf. p. 38), in India it was far too rapid and uncontrollable. The huge number and variety of cultures that have swarmed in the Indian peninsula have been altogether too diverse and manifold for satisfactory fusion or controlled creative clash. In a desperate defence against this chaos (which permeates the over-exuberant art and luxuriant mythology of India), the caste system was perpetuated, a device whereby the swarming cultures could mingle only in destructive and uncontrolled ways. So stable is the system of caste that even the present government are finding it, in many places, toughly resistant to social progress (cf. Anon., *Nature*, 1956). By its rigid hereditary exclusiveness, the caste system was no less fatal to the growth of science than the deceptively flexible and democratic examination system of China. The last cultural impacts came from waves of Moslem invaders; but despite the enlightenment of such tolerant

individuals as Akbar, the Moslem culture proved immiscible with that of the Hindus and Buddhists. The culture of India remained a prey to pullulating mythology on the one hand, and diffuse mysticism on the other, no climate for the development of science.*

The explosion of the European civilizations has, of course, in the last century profoundly changed the course of these two hitherto abortive civilizations, which may have central parts to play on the new stage of unified world history: what they will achieve is for the future to disclose. Let us now turn to the positive side of the picture—the tremendous adventure of Europe.

The European Adventure†

A cursory view of the history of Europe might suggest that some providence watched over the destiny of this region. The suggestion would be as fanciful as that of the luck of the Tudors (p. 199); if the history of Europe had not taken the strange course it did, the progress of man would have turned on events in some other quarter. To begin with, the geography of Europe is singular (we include most of the Middle East, and the North Coast of Africa). Whereas in Asia huge barriers separate great tracts completely, the water and mountain barriers of Europe divide it up in such a way that nearly all its parts are continuously connected by more or less elaborate detours, giving it the appearance of a labyrinth. Thus it could come about that Egypt could influence its Middle Eastern neighbours by land, its Cretan and Greek neighbours by sea—two differentially selective influences, which were later to come together in a new fusion. Thus it could also come about that migrants from India and Central Asia could enter Europe by several routes and at several degrees of penetration, then proceeding to wheel down successive Mediterranean peninsulas, where they would come into contact with those of their remote relatives who had taken shorter routes or made shorter loops. It is a region where peoples were continually parting only to meet again after shorter or longer periods of cultural divergence. It is a region where migrants from the other great continents came together at many different points of space and time. And again and again it saw the clash and inter-

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* An interesting exception is the Indian flair for pure mathematics.

† The very brief sketch that follows is of necessity impressionistic, and might be qualified in many ways in detail. We hope to explore some of its features more precisely in later works.

penetration of cultures not altogether different, and not so far apart in complexity as was China from its Mongol and Hun invaders. Let us glance at a few critical moments as the great panorama passes.

Successive waves of conquerors followed each other in the Middle East, watched by the apparently eternal Egyptians from their fertile strip on the banks of the Nile. But the first great climax in the Aegean was to come from the clash between two related Indo-European groups, the Greeks and the Persians, when the latter had assumed control of the Semitic civilizations of the Middle East, and invaded Egypt itself.★ Meanwhile a Semitic people, the greatest maritime culture of the ancient world, had founded Carthage in North Africa, and the Greek and Carthaginian colonial enterprises came to grips in the Western Mediterranean. The very year (according to a pleasant fiction, the very day), that saw the destruction of the Persian fleet by the Athenians and their allies at Salamis, saw also the defeat of a Carthaginian army at Himera by the Greek colonists of Sicily. Colonial rivalry continued sporadically in the West; meanwhile the Eastern Greeks, failing to unite on their own account, were united by the power of Macedonia.

The next great adventure we owe to the strange concatenation of a cunning old dominance diplomat, an eminent philosopher, and a terrifyingly exploitive barbarian princess—Jocasta in the open and with no holds barred. For Philip, Aristotle and Olympias were the father, tutor and mother of Alexander the Great, who carried a diluted Greek culture through the Middle East almost to the Ganges, fusing in a strange mêlée all the myths and manners of the Eastern Mediterranean. From the chaos of rival dynasties into which his vast empire collapsed, the camera of history turns westward to the struggle of Carthage with the new power of Rome, which, proving the victor, was forced by the logic of empire to turn both east and north-west, as the legions of Lucullus and Pompey spread over Alexander's empire, and the legions of Caesar overran Western Europe and even crossed into Britain. As they passed, the conquering Romans were taken captive by the culture of captive Greece, and Graeco-Roman civilization was spread over the whole of Europe from Gibraltar almost to the Caspian along the Roman roads; while the

★ The first Persian Empire (unlike the totalitarian one which re-appeared centuries later) was the first tolerant federation of many independent cultures; its Greek subjects in Asia Minor took full advantage of this new opportunity. Their work culminated in the masterpiece of Herodotus, the founder of anthropology (as Thucydides later of sociology) and the creator of narrative prose—amazingly modern and mature in both.

language forged by Cicero and Virgil was to communicate it to the cultures of Europe for many centuries to come. The Romans supplied communications which for a while linked together into one the mass of diverse cultures they had brought under their rule. Strange gods and goddesses of every conceivable variety were welcomed in the hospitable temples of Rome; the Syrian River Orontes, said Juvenal, flowed into the Tiber. The cultural fusions of Alexander seemed to be renewed, but now a new factor surged into prominence—the most stubborn heirs of Egypt, the smallest of the Semitic cultures in the Middle East, obsessed with their strangely exclusive mythology, resisted the Roman unification with more vigour and effect than the rest of the provinces put together. The destruction of Jerusalem was too late to hold them: their off-shoot, the Catholic religion, had begun its career of conquest over the medley of mythologies in the variegated empire. In a few centuries, it was being imposed on a prostrate Europe by the policies of Theodosius, who, building on the totalitarian foundations laid by Constantine and the pagans Aurelian and Diocletian, seemed about to reduce the whole of this unruly mass to uniformity. From this fate Europe was diverted by repeated incursions of barbarians from the north. But these Germanic peoples neither remained wholly untouched nor became totally absorbed, like the Mongols in China. They infiltrated the Empire by slow degrees, and the Germanic Kingdoms of the west were to be agglomerates of all stages of culture from barbarism to the relics of civilization. Meanwhile the latent incompatibilities between the eastern and western halves of Europe, which the Romans had united in uneasy partnership under their sway, emerged afresh within the new catholic culture. They were to issue, before long, in a spate of ideological disputes, and finally in the effective re-division of the Church itself between Rome and Constantinople. The great edifice fell apart into its constituent blocks; but not without leaving permanent traces of cultural hybridity. While the Germans over-run the west, the east is at first a scene of sporadic clash between the Byzantine and the revived Persian Empires.

In the west, the competition of what was left of Graeco-Roman civilization with the now relatively complex Germanic cultures was to remain as a perpetual source of disharmony throughout the Middle Ages, and to save Northern and Western Europe from the fate of China. For, as Gibbon saw, the heir of the Roman Empire was the Roman Catholic Church. But its priesthood were never to enjoy the unquestioned authority of the Confucian bureaucrats. They were opposed by

not inconsiderable rival authorities—the secular institutions derived partly from Rome and partly from the barbarian cultures themselves as they repelled still more savage invaders, the prestige of the feudal hierarchies.★ This conflict raged with most sound and fury at the top of the hierarchies, where the Pope, heir of the Caesars, contended with the Holy Roman Emperor, heir of the German generals. It continued in ceaseless struggle throughout the Middle Ages. Meanwhile the petri-fied Byzantine Empire showed little initiative (though it, too, was to leave an heir—the Russian Empire of the Czars and Stalin); but dis-turbance was to come from south and east nevertheless. The sudden appearance of Islam led first to two brilliant new civilizations, the Moors in the west, the Arabs in the east. The latter, fusing richly with the Persians, bequeathed us not only the germs of new sciences, but also the most imaginative and enjoyable of all narrative literatures. The Persian-Arabian civilization was short-lived, but at least partially absorbed the new wave of invaders from Central Asia, the various branches of the Turks. After the fruitful interpenetrations of the crusades, these barbarians captured Constantinople, involuntarily releasing into Western Europe, along with Greek refugees, the original version of Greek civilization, encoded in the masterpieces of Greek literature, the springs of the Renais-sance. A few decades later, printing was wide-spread and Columbus had sailed.

Events now began to move fast (cf. *Fig.* 22, p. 132). New power-groups were forming in an age of renewed commerce and exploration. The feudal system was broken in several countries, but not to the benefit of the Church, for the centralized governments supported by new classes proved far tougher adversaries, and ushered in the Reformation. A re-grouping took place into national cultures, signalized by the famous principle under which the religion of a country was determined by that of its prince. A host of rival authorities arose all over Europe, and here, in the melting-pot of myths and traditions, were the conditions for a real beginning of science. One great power sought to re-establish uni-formity—the power of the Hapsburgs. Their kingdom in Spain had frozen into the most rigid automatism ever seen in Europe. (Only

★ Conversely, the feudal tendency to harden into a rigid caste system, based on that of the later Roman Empire, was balanced by the relative flexibility of the Church, which opened to men of low birth a career in diplomacy and administration, and initially promoted the growth of free cities. It was as if the caste system of India and the examination system of China were *both* present, each preventing the other from total predominance.

because it had formed part of a progressive culture for longer—cf. p. 427—was it able to overthrow the hardly more specialized Aztecs and Incas.) It had destroyed the Moors and banished the Jews, but it gained a spurious and artificial lease of life, or puppetry, through the silver mines of the New World. Nevertheless, its weirdly stylized organization doomed it; and though the struggles of the Spanish Kings and their Austrian cousins were to convulse all Europe in the Thirty Years' War, their ruin was certain after the defeat of the Spanish Armada. This event was portentous of the role of Britain, which had escaped ideological civil war, for of all countries Britain had been the one most subject to cultural hybridization. If the diversity of the continents had been funnelled into Europe, that of Europe had been concentrated in Britain, with its constant influx of first invaders and later refugees, and within Britain England was similarly able to tap the resources of variability in Scotland and Wales. From now on, Britain was in the van of European progress. Its foreign policy secured the balance of power, whereby successive conquerors were enabled to overrun the continent and shuffle its cultures together, but never permanently to impose their own. And so, in this fantastically brief survey, we reach the closing chapters—the spread of European influence over the world, the potentialities for new interaction between the Europeans of Europe and their culturally diverging offspring elsewhere, and that potentially remarkable device for the peaceful interpenetration of cultures, that was to become the Commonwealth. Through these final passages there rose the fortunes of science and technology, to reach their first climax in the industrial revolution. Throughout this long and tortuous story, Europe had never been permitted either to lapse into a total chaos of isolated, warring cultures, or to fall under the uniform influence of any one cultural pattern.

The Human Crisis

We who are now alive are privileged spectators—or, we may hope, actors, for we are witnessing the supreme climax of human history in its first evolutionary phase. The progress of European-American civilization has reached a phase of critical strain between its component social trends. We have seen (p. 163) that no social organization can be stable while the co-operative and the competitive-exploitive modes

continue side by side, and the tension between them is becoming intolerable. At the same time, science itself has reached a point where it can no longer ignore the subject of human social behaviour. This point must be critical, for science has been able to advance so far on condition, as it were, of respecting this taboo (p. 445). Both in individual and culture, the strain must be intense, and we may well suppose that the organized rationalizations of dogmatic ideology may at this point make their last stand against an exploration that must finally eliminate them. In its lop-sided advance, science has itself intensified the crisis. For the mass media of radio, film and television could, if abused, effect a disastrous homogenization of culture within individual countries, and hence implacable international hostilities; the execution of which, with the aid of thermo-nuclear weapons and the famine and pestilence that hover in their train, could write *finis* to the story of man. Nor can we ignore what some have called the 'population bomb'—the danger of reproducing too fast for our natural resources, a complex problem of human behaviour.

Meanwhile there are other pressures, no less compelling. At the technological stage of the seventeenth century, national organization became necessary. As we expend our old energy resources, and enter the Atomic Age, world international organization becomes no less necessary at this new stage. Paranoid national hostilities not only expose us to the risk of the final disaster of war; they are simply incompatible with our technological needs. And in making this transition we pass through a situation the like of which has never before been seen. Two millennia ago, so fragmentary were world communications that even the mighty Empires of the Caesars and the Han never once came into even momentary contact; the middlemen of the silk trade, anxious for their profits, could easily keep these worlds apart (cf. Willetts, 1958). Today the world is one through its communications; and this one world contains cultures at every technological grade from Stone Age to Calder Hall. The fact appears from a simple enumeration of energy requirements in the different regions (cf. Lansdell, 1958). We know what technological transitions mean in the competitive-exploitive terms of power-groups (p. 436); and the dangers of our position are intensified by those of local revolution and instant international repercussion.

Yet while resolutely considering all these dangers, we need not be altogether abashed by them. The new media of communication are potent means of cultural interpenetration and mutual understanding

and the disruption of defence systems. Television in particular must be having incalculable effects in this direction, as the individual, sitting at home, sees and hears human behaviour all over the habitable world. The progress of technology has inevitably meant the spread of education—first the industrial revolution, now that of what is called automation, have compelled greater and greater individual exploration and communication between individuals. The process has gone faster and faster, as greater and greater responsibility devolves on 'ordinary' individuals, many of whom may now be responsible for as many lives daily as a feudal baron in the whole of his career. The spread of education has momentous consequences for behavioural inheritance. Kinsey and his colleagues dated the most profound change in American attitudes to sexual behaviour at about the end of the First World War. Never, they concluded, did parents and children face each other across a wider cultural gulf. It was about that time that compulsory education became widespread, and books began to be widely available to the public, so that information withheld by parents could be obtained by their children elsewhere. Nunnally (1957) has shown that the views of younger people are much more in accordance with contemporary expert opinion on *mental health* than are the views of their elders. As children grow up in this century, the competitive-exploitive relationships they experienced with their parents in their earliest years are challenged by the co-operative and communicative relations they encounter in wider social experience. The strain between the two modes can never have been greater than at present. For all human automatism and rationalization may be seen as attempts to solve problems in terms of appeasement, dominance status, competition and exploitation; and these terms are becoming every day more obviously at variance with the realities of the human situation. In such conditions, it is natural that overt neurotic symptoms are exceptionally rife. But even the hydrogen bomb may have its hopeful aspect; supreme Deterrent, it may at last bring home to all of us the futility of acting out. From this tremendous conflict, only one thing can emerge if we are to survive—an earnest endeavour for the total abolition of competitive-exploitive interaction, and the emancipation not only of the species but of the individual.

Cultural and Individual Evolution

A century has passed since Darwin published the *Origin of Species*, and evolution became a central concept in science. Organic evolution, the theme of his work, has given rise to the human species. Cultural evolution, as our European flash-back has shown, has permitted our progress up to the present point. It is now time for the emergence of individually controlled evolution.

For, up to this time, the course of our progress has been determined by factors outside our direct control. It was not our deliberate doing that the Germans invaded the Roman Empire. Every step we have so far taken has been forced upon us by the logic of history. We must indeed at all costs act to maintain that cultural hybridity which has so far been the only guarantor of progress. But this is a stop-gap measure for immediate sociological control. It cannot be trusted any further, for the tensions between co-operative and hostile modes have become acute in the modern technological predicament, and if we continue to drift we may drift on the rocks. In all forms of evolution, natural selection means *waste* (Darwin's starting-point); but we need not make overt errors, with slumps and revolutions and wars: better to 'waste' alternative plans and programmes on paper or in computers, and do the trial and error, the experiment and selection, in a manner which can harm nobody. Nor can we suppose that anybody *already* knows how to plan without research, or expect persistent progress to come of intervention in the affairs of the mass of mankind by the most benevolent legislative power-group: this is the trap of the Grand Inquisitor in Dostoievsky's wonderful fable. It is now our opportunity and our necessity to assume control of our own evolution, and this can only come about by our emancipation as individuals.

For if every one of us can be brought to explore for him- or herself, to break down defence systems and assume personal freedom from the automatic controls of behavioural inheritance, the resulting culture will be for the first time not contingently but inherently progressive. In such a world, we shall be able, for the first time, to act, individually and collectively, as free agents in the pursuit of happiness. In this book we have made no attempt to soften the present picture, or to gloss over the extent to which we are all still automata: for only by full realization of our present slavery can we become free in the future. To this end every individual among us must explore, so that the whole concept of power-

group vanishes from human history, and science and art become coextensive with human life. To such a species, all things will be possible.

'*I said: "Ye are gods"* '

In the past, the humanist has often and with justice been accused of facile optimism and a blindness to present human evils. The bias was predictable, for nearly all humanists have been idealists. We hope that in this book we have offered no such easy comfort. Unlimited realism about the present, unlimited optimism about the possibilities of the future, these will be the signs of an intelligent approach to man's condition. Much could be said about the possible heightening of human capacities that we might expect, if our automatisms are dispelled; here we shall enter into no speculative details, preferring to leave our possible future to the imagination of every reader. It needs all our imagination even to begin to frame a conception of progress in a world of increasingly intelligent and increasingly communicative individuals, a world of eternally expansive happiness—a world that we can have, in a sense, for the asking: for the asking of questions, for the intrepid exploration of our own and each other's automatic compulsions. If the blind forces of cultural evolution have carried us so far, where can we not go on our own initiative? It would be strange if we failed to reach, in all senses, the stars. The stars are reached through steep places, and the problems of transition are great. They may take centuries to solve, they may, at our accelerating tempo, take years. The transition will be made when every individual is striving after his own freedom: from that turning-point, the new era of the universe will begin. For natural selection and cultural evolution 'gave us not That capability and godlike reason To fust in us unused'.

Appendices

'Merely corroborative detail, intended to give artistic verisimilitude to an otherwise bald and unconvincing narrative.'

<div align="right">Pooh-Bah (The Mikado)</div>

1. *Cybernetics and the Darwinian Machine*   (Chapter 1, p. 15).

Unlike all the following appendices, this one is primarily addressed to a group of specialists—specifically, those familiar with cybernetic ways of thought. They will have little to learn from the section concerned, but without a brief note of translation they are likely to be puzzled by some of our usages.

It will be noticed that we have managed to dodge the most fundamental of all cybernetic concepts, that of *Information*. When this term is used in a context of human behaviour and for readers unfamiliar with it, there is almost bound to be misinterpretation in the absence of long and cumbrous exposition. Some have distinguished between selective information (that of the cyberneticist) and semantic information (essentially that of common usage—cf., for example, Fairthorne, 1953, 1954). To make proper use of this distinction would have greatly lengthened the book—to little purpose, for every cyberneticist knows with what patient insinuation the semantic *will* creep in when we should properly be talking of the selective (that is, of the concept rendered in slightly different forms by Fisher, Wiener and Von Neumann, and Shannon— cf. Baer, 1953; Wiener, 1948; Shannon and Weaver, 1949). It seemed best to avoid all danger of confusion by using different words. We have rendered selective information by two terms—*variety* (following Ashby, 1956a) and *complexity* (following Pringle, 1951, and referring essentially to stored information). Wherever the word 'information' itself occurs in the text of our book, it is used in the everyday sense more precisely rendered by semantic information—that is, we take the content of a message into account. Many statements about this will, of course, also apply to the cybernetic concept as well, for the transfer of information in the every-day sense cannot occur without the transfer of selective

information of a given, related amount. Much the same problems are liable to arise from the term *communication*, which we have consistently used (later in the book) in a special sense of our own related to the matters under discussion.

The word 'machine' we use mainly in the sense of a 'machine with input' (Ashby, 1956a—we have not attempted to reproduce his elegant mathematical definitions). The terms 'automatic' and 'evolutionary' are used in the sense of 'non-Darwinian' and 'Darwinian', as defined by Wiener (*apud* Ashby, 1951). (They bear a certain relationship to Ashby's later contrast—1956a—between determinate and Markovian machines).

Much of the content of the section concerns what are by now common-places of cybernetic thought. We have had many sources in mind, among which special mention should be made of Wiener (1948), Von Bonin (1950), Sommerhoff (1950), Linschitz (1953) and Ashby (1952, 1956a). The main argument on automatic and evolutionary machines merely puts together two sets of ideas. The formal parallel between a Darwinian machine such as the neocortex and the processes of organic evolution has been drawn chiefly by Pringle (1951) and Ashby (1951; cf. also 1952, 1954). Consideration of human societies as Darwinian machines is also familiar by now (cf. especially Gerard *et al.*, 1956, and our own 1957 paper). The parallel once drawn, we have simply transferred to these fields (here and in Chapter 10) a number of ideas current among biologists concerned with evolution (especially those of Huxley on progress—1942, 1954, etc.). There is, for instance, an obvious reference on p. 22 to the process of successive ecological replacement (cf. Young, 1950). We have often in the book had in mind the phenomena of genetic hybridity (for which see especially Lerner, 1954; also Russell and Burch, 1959). Fuller, more systematic and more documented treatment of the subject of this section has been provided elsewhere (Russell, 1958a; 1959b; in press, a; in preparation).

2. *Neurology and the Work of Halstead*   (Chapter 2, p. 31).

Halstead's apportionment of his four factors to specific *parts* of the neocortex has been challenged on the basis of valid but much less extensive evidence (Teuber and Weinstein, 1954; and cf. Sprague *et al.*, 1955). This slight and still doubtful disagreement need not confuse or concern us. To our knowledge, nothing has been discovered more recently which

conflicts with the validity of Halstead's four factors, or with their relation to the neocortex as a whole.

On the contrary, the recent researches of Reitan (1955 *a*, *b*, *c*; 1956) have uniformly confirmed Halstead's findings, while extending them in various ways. (For a specially interesting observation on the neurology of intelligence, see J. R. Russell and Reitan, 1955.)

3. *Man and the Lower Vertebrates* (Chapter 2, p. 39).

Throughout the book, the assumption is made that intelligence is uniquely characteristic of man, and that the instinct system is the predominant mode of behavioural organization in all our fellow-vertebrates (the remaining mammals, the birds, reptiles, amphibia and fishes). Beyond question this is a fair assumption in outline. Intelligence operates as a whole, integrated system, and in this sense it is certainly confined to ourselves. The best index of it we possess is the faculty of language, and this, even in the most favourable conditions, cannot be taught to a chimpanzee (Hayes, 1952).

Rudiments of the several intelligence *factors* naturally appear in some vertebrates, especially in mammals and above all in the lower primates (chiefly monkeys and apes). Abstraction appears in the process of familiarization, whereby a mammal, bird or fish is able to recognize a particular piece of spatial territory, the objects that mark it, or another individual animal. This familiarization does not, however, lead to less compulsive behaviour, but only to a change in compulsions (cf. p. 204). Some animals actually *investigate* a territory or another animal in order to 'learn' it in detail. The drive to investigate is related to emergency mechanisms (cf. p. 55 and Holzapfel, 1950); it can compete with an appetite drive such as hunger (Chance and Mead, 1955). In rats we also find the process of *exploration* proper (Mead, 1953)—the examination of ground outside the familiar, investigated base. But this kind of exploration only occurs under the incentive of a particular drive such as hunger or thirst. In monkeys, there appears a tendency to explore the environment, visually or by manipulation, without any particular motive other than that of exploration itself (e.g., Harlow *et al.*, 1950; Butler, 1953; Dennis, 1955). The exploratory drive has thus been emancipated (p. 81) from control by other drives. In the first dawning of intelligence, *play* seems specially important. Animals with a considerable capacity for play show, later

in life, exceptional flexibility, and can hence colonize varied environments. This flexibility may turn up even in some bird species, such as the raven (Lorenz, 1956). All man's achievements may well stem initially from a combination of 'idle curiosity and frivolous dissipation' (Russell and Russell, 1955). But we must always be on our guard against ascribing intelligence to instinctive performances which perfectly simulate it. Some wasps have been seen *suddenly* to repair defects in their nests, in a manner irresistibly suggestive of a flash of insight. Deleurance (1956) has shown that this is due to sudden transition to a mood dominated by a drive to build in a particular way, which quite fortuitously effects the repair. Thorpe (1956) has assembled a valuable survey of evidence for elementary intelligence in lower animals; but many of his examples must be rescrutinized in the light of this observation. In this book, we have not hesitated to exaggerate, for clarity, the differences between man and all other animals; but the last step in the formation of intelligence—*integration*—has certainly been reserved for man, and has not yet been taken with complete decision, as appears from much in this book.

Considerations of space have restrained us from more than an occasional glance at neurology and neurophysiology in this book (our ideas are related more fully to these kinds of evidence elsewhere—Russell, in press, *a*). But one aspect of the evolution of intelligence is worth mention here. Specialization in the evolutionary machine may be represented schematically as in *Fig.* IN. The cat's-cradle affair (A) shows eight component units richly interconnected in all possible ways. The diagram (B) shows the same units split into assemblies of four units each, by retention of some pathways and suppression of others (cf. p. 21). There can now be no mutual influence between the smaller units of one assembly and those of the other, the only interaction being a gross one between the two assemblies as wholes. As Chapter 2 proceeds, the diagram (B) will be seen as an excellent representation of the state of an instinct system, in which a few mechanisms interact grossly, with no communication otherwise across the barriers between them.

The cerebral neocortex, which becomes appreciable in mammals, is greatly accentuated in primates, and practically fills our own skulls, takes the form of several surface layers of nerve cells whose fibres run down and interlace very freely underneath. Despite certain geometrical limitations (Le Gros Clark, 1945), this is a supremely efficient device for maintaining the greatest possible wealth of interconnexion between the cellular units themselves, the smallest units of nervous function.

(This interconnexion is effected both by fibres passing immediately under the surface and, as now seems increasingly important, by wider circuits through other parts of the brain.) Through functional emphasis of some pathways and neglect of others, such an apparatus *may* become specialized; but in principle it can remain evolutionary and progressive almost indefinitely, for the enormous number of available connexions (p. 18) is unlikely to be used up in any space of time that means anything to the imagination.

The front parts of the brains of bony fishes and birds take a quite different form (cf. Herrick, 1924; Kappers *et al.*, 1936; Russell, in press, *a*; Russell *et al.*, 1954; Russell and Russell, 1959; Young, 1951*b*— the same structural device turns up in the most behaviourally complex invertebrate, the octopus). Here we find solid masses of tissue, with little scattered islands of cells, highly apt from the outset for developing an arrangement like that of diagram (B). The brains of these animals are designed perfectly to function as *automatic* machines of great complexity. They can be partly designed in detail from the very beginning of their function, and need remain evolutionary only while the other details of specialization are being filled in. It is in the birds and bony fishes that we find great wealth of behavioural complexity combined with the tendency, evident throughout Chapter 2, to behave in a completely automatic way. The other vertebrates (such as the frogs and toads discussed in the same chapter) show relatively little development of either sort of structure. Their behaviour is highly automatic and much less complex than that of birds and bony fishes.

4. *The Breeding Season in Frogs and Toads*   (Chapter 2, p. 40).

Savage (1934) showed that tagged and therefore identifiable individuals of the common British frog mated several times in a breeding season lasting only twelve nights. The urgency of mating in such a short season is marked by a complete suppression in the males of any impulse other than the reproductive ones discussed in this section. They do not feed, and they cease to react to danger and even to pain, as first demonstrated by the Abbé Spallanzani (1780; this early physiologist was also the first man to prove that bats can fly blind, though the reason for this was not discovered until the invention of the analogous technique of radar). The clawed frog discussed in this section is, in fact, water-living all its

A

B
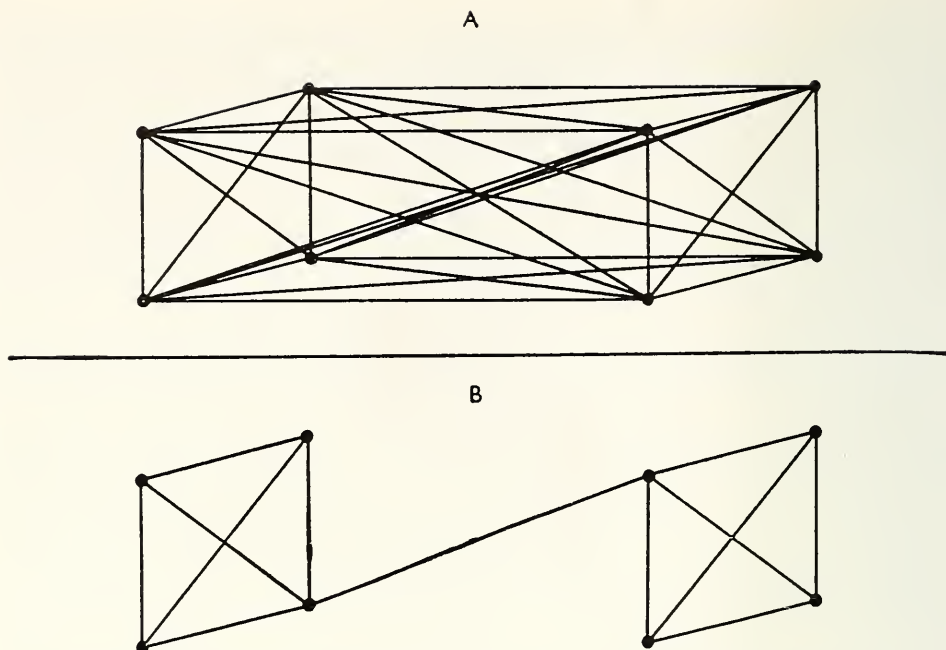
FIGURE IN—SPECIALIZATION IN THE EVOLUTIONARY MACHINE

A. *Eight* component units of a machine, represented by dots. These units are con-
nected in all possible ways among themselves, the connexions being represented
by lines.

B. The same *eight* component units after considerable specialization has taken
place. A few connexions have been selectively retained; all the others have been
suppressed. As a result, the whole assembly has been virtually reduced to *two* larger
component parts, interacting as wholes.

life (except when its pond dries up, and it scrambles across country to a
new one—much as did the first animals to invade the land). It has a
much longer breeding season than most other frog or toad species;
even the males, at least in the laboratory, do not lose their ordinary
timidity. To separate a clasping pair of common frogs, considerable
physical force is required; clawed frog couples can be separated by
an incautious cough from the experimenter. But the return to the water,
and the long breeding season, seem to be late developments in the
evolution of the group; and the clawed frog has retained the peculiar
behaviour mechanism of its ancestors, which is perfectly efficient under
these new conditions.

It may be added that reproduction in frogs and toads is much more
diversified than is indicated here (cf. Noble, 1931); but the mechanisms
described are the best-known and most fully experimentally studied.

They are almost unique to this group; but something at least partly similar seems to occur in the little brine-shrimp Artemia (Russell, personal observation).

5. *Instinctive Mechanisms: Innate and Acquired, Monoethic and Polyethic* (Chapter 2, p. 50).

So much confusion has arisen over the term 'instinct' that it seems useful to provide a clear guide for any reader who wishes to explore further the literature of animal behaviour.

Some instinctive mechanisms are said to be *innate*. Geneticists do not commonly use this word, for they have no occasion for it in dealing with the genetics of anatomical structures. Any anatomical structure may equally be called 'innate' or 'acquired', for it is the joint produce of chromosomal instructions and the developmental environment. (For a discussion of some of the ramifications of this, cf. Russell and Burch, 1959.) The definitions of 'innate' and 'acquired' given on p. 50 are, however, useful in connexion with behaviour. They have been challenged by Hebb (1953) on the basis of some interesting factual evidence (Hebb, 1949)—namely that visual performance of a kind usually called innate fails to appear in rats and chimpanzees reared in darkness. This is really beside the point, for the transmission arrangements are here being cheated by rearing the animals in an environment quite abnormal for their species; similar arguments would apply to the case of mutilated animals. By an innate mechanism, we mean one that is neither socially transmitted nor acquired by *specific* practice or experience on the individual's own part (Hinde, 1955); one that requires for its first active appearance *only* the non-social conditions necessary for the animal's healthy development and characteristically available to all or nearly all members of its species in nature—for natural selection can only operate on this conditional basis. Rats reared in darkness are not suitable subjects for investigating the question.

To determine whether a behaviour mechanism (sensory or motor) is innate or acquired, is a cumbersome process, depending on the use of a method known as the Kaspar Hauser technique, after a boy who is supposed to have grown up in isolation from the rest of mankind (cf. Lorenz, 1950). The animal must be reared from birth or hatching artificially, in isolation from other members of its species, but (unlike Hebb's

rats) in physical conditions exactly comparable to those it would encounter in nature. If a motor pattern or a reaction to a particular situation then appears in perfect form the first time it is observed, and if observation has been sufficiently continuous to ensure that no previous practice or experience has been missed, then and then only can the mechanism be described as innate. From indirect considerations, innate instinctive mechanisms are likely to be quite common; but remarkably few have been properly demonstrated by this very exacting method. (As just described, it may not even be exacting enough, since important processes can occur while a bird is still in its egg-shell—cf. Kuo, 1932; Lehrman, 1953). It seems very likely that innate instincts are a later product in evolution than the facility for *acquiring* instinctive mechanisms, and that the trend towards the former must have occurred in the manner described on p. 49 (cf. Medawar, 1951; Ewer, 1956).

If we watch an adult animal displaying instinctive behaviour, we cannot tell whether the mechanisms are innate or acquired (cf. p. 50); for this purpose the most rigorous Kaspar Hauser technique is required. It is therefore common-sense terminology to use one word—*instinctive*—for such mechanisms when observed in the adult; their classification in terms of mode of origin can then be left open.

Unfortunately, there has been a widespread tendency among students of animal behaviour to assume without any direct evidence that all the instinctive mechanisms they observe are necessarily innate, and the reader is warned that he will often find the two terms used interchangeably in the work of earlier authors. Yet mechanisms identical with all those described by such authors (e.g., Tinbergen, 1951) can be shown in some cases to be unquestionably acquired—a much easier demonstration. This is established in the course of Chapter 2, chiefly from the very comprehensive work of Diebschlag (cf. also Miller, 1951; Larsson, 1956; Chance and Russell, 1959). It is therefore most unfortunate that the terms 'innate' and 'instinctive' have so often been equated; those who (like Hebb) have objected to the former word have tried to abandon the whole concept of 'instinct', with unfortunate results. One source of this terminological confusion appears in Chapter 4 (p. 192).

The sort of instinctive mechanisms chiefly discussed by such ethologists as Lorenz and Tinbergen are common to all the members of one species, and characteristically different from species to species. Some of their most important work has turned on the comparative study of movements in different species, and hence the study of the evolution of

instinctive mechanisms in different directions (Lorenz, 1950; Tinbergen, 1952 *a*, 1953 *a*, etc.). It has therefore seemed legitimately important to distinguish instinctive mechanisms with this property from those peculiar to *individuals*.

The key concept here is not that of innateness, but that of community to a species. As Morris has put it (1956 *a*;—and cf. 1957), an animal may develop a reaction to, say, a particular colour in the plumage of its fellows, as a result of a process of experience common to every member of the species, or it may 'respond to a "black pebble next to a crooked twig" on the border of its territory and such a response will occur *only* in that individual of the species' as a result of experience peculiar to itself. There is nothing to prevent an *acquired* instinctive mechanism from being acquired uniformly by all members of one species, and no members of any other, simply by community of experience restricted to the members of the one species. Such acquired mechanisms could show all the comparative aspects so important in the study of behavioural evolution. Common experience may indeed be used to off-set and cancel variation of genetic origin. Bonnycastle and Leonard (1950) were trying to improve the method of testing certain types of analgesic (anti-pain) drugs in pharmaceutically important tests. Rats were exposed to a painful stimulus—a source of heat—and their reactions were studied. The test consisted in the elimination of these reactions by a satisfactory analgesic preparation. Trouble arose on account of the variety of the rats' reactions. Some would squeal, others crouch, others would remove their tails from the source of the painful stimulus. The investigators trained *all* their rats to remove their tails at the first painful contact. The behaviour of the rats thus became uniform, to the great benefit of the test method (which also became more humane, painful contact being reduced to a minimum). Thus the pharmacologists created an instinctive mechanism common to a large population of rats. Chance (1957 *c*) has suggested that this technique might have wide practical applications in the study of drugs. (It is in fact an expression of an important general cybernetic principle stated by Ashby, 1956 *b*.) There seems no reason why the chromosomes of an animal species should not count on uniformity being established in this way even in the face of some genetic variation, which could then be tolerated. The method of Bonnycastle and Leonard may well have been invented by nature. Conversely, an instinctive mechanism strictly definable as innate could appear in an isolated Kaspar Hauser'd individual as a result of genetic peculiarity (cf., for example,

Bastock and Manning, 1955); such a mechanism might be quite unlike those of other members of the species. Indeed, all innate instinctive mechanisms must obviously have been limited to a fraction of the species population at some stage of their evolution (cf. especially Ford, 1945).

Chance (1957 *a*) has introduced the terms *monoethic* and *polyethic*. A species is monoethic in respect of instinctive mechanisms common to all its members, and polyethic in respect of those which differ among its members. Evidently behaviour workers have been mainly concerned with monoethic instinctive mechanisms in animals. All four combinations are theoretically possible and probably occur in fact—innate monoethic, innate polyethic, acquired monoethic and acquired polyethic. (Cf. Chance and Russell, 1959; also Russell, 1958 *b*.)

We can thus use the term *instinct* (as in fact we have throughout this book) in general contrast to that of *intelligence*, to signify *automatic function*, determined from the outset *or* acquired by specialization through conditioning processes (cf. Appendix 3, p. 461 and p. 57). Instinctive mechanisms can then be cross-classified by the two pairs of criteria. Etymologically, '*instinct*' merely means '*impulse*', irrespective of origin and distribution. The instinctive mechanisms of *man*, with which we are so deeply concerned in this book, are *almost all acquired*, and largely polyethic. As appears in Chapter 10, within a particular *culture* they may be highly uniform, and cultures may be compared on this basis just as species have been compared in the study of animal behaviour.

6. *The Imaginary Rival* (Chapter 2, p. 68).

In one of these experiments, a simple model of a pigeon was placed beside the food post at the centre of the spiral. A pigeon ran as usual to the centre, and found itself face to face with the 'owner of the territory'. It must have been a shock. The (real) pigeon stood stock still for about two minutes, made a few tentative movements directed at the model, and then legged it back for the entrance, leaving the 'owner' in possession of the field. It returned a few minutes later, with frequent pauses and retreats along the course of the spiral, found the model still there, and returned at a brisk trot to its cage. The model was now removed, but the pigeon (which of course did not see this happening) had had enough for one day. The next day it stepped out boldly towards the spiral, but its courage failed at the entrance and it went home again. The following

day, with many pauses and vacillations, it actually reached the centre; but, although there was no model there, this absentee landlord was still too formidable, and the trespasser dared not mount the post. On the next day it finally mounted the post, and ate there 'with every sign of a "guilty conscience" ' ('*mit allen Zeichen eines "schlechten Gewissens"* '). Eight days later, this pigeon's track to the centre of the spiral was still punctuated by little retreats at intervals, 'letting "I dare not" wait upon "I would", like the poor cat i' the adage'. We have here a conflict between two instinctive mechanisms, and an instance of the powerful and lasting effect of an emergency drive in behaviour.

7. *Pigeons and Digger-Wasps* (Chapter 2, p. 69).

Diebschlag himself aptly compares the behaviour of his pigeons with a sequence of reactions in the digger-wasp Ammophila which are quite probably innate. This insect hunts caterpillars, paralyses them, and buries them in holes with her eggs, so that the young digger-wasp larvae can eat fresh food when they hatch. It was discovered long ago that the (probably innate) sequence of instinctive reactions concerned has just such properties of compulsiveness as the acquired sequences in the pigeons. If a second caterpillar is put in front of a hole just after the wasp has closed this up, the wasp, on seeing the prey, opens the hole again to bury it. But it then sees the one it has already buried, and closes the hole up again. Then it sees the second caterpillar outside, and opens up the hole. Then it sees the first caterpillar inside. . . .

This comparison prompts an account of another of Diebschlag's experiments. He trained his pigeons to choose the centre one of a row of three posts. This could be accomplished even when the pigeons had been previously side-trained, though with the usual difficulty of re-training. Adding a number of differently coloured posts in symmetrical positions did not affect the new choice—*Fig.* 2N, *a, b, c*. But if the intruding posts were asymmetrically placed (*Fig.* 2N*d*), the pigeons could not solve the problem of finding the centre post, and they now regressed to the earlier mechanism of choosing (e.g.) the most left-hand post.

If *two* rows of three posts each were provided, the birds could be trained to choose the centre post in each row, but *only if* the two rows were so far apart that there were essentially two quite separate instinctive mechanisms set up. Two trainings then had to be made, one for each row.
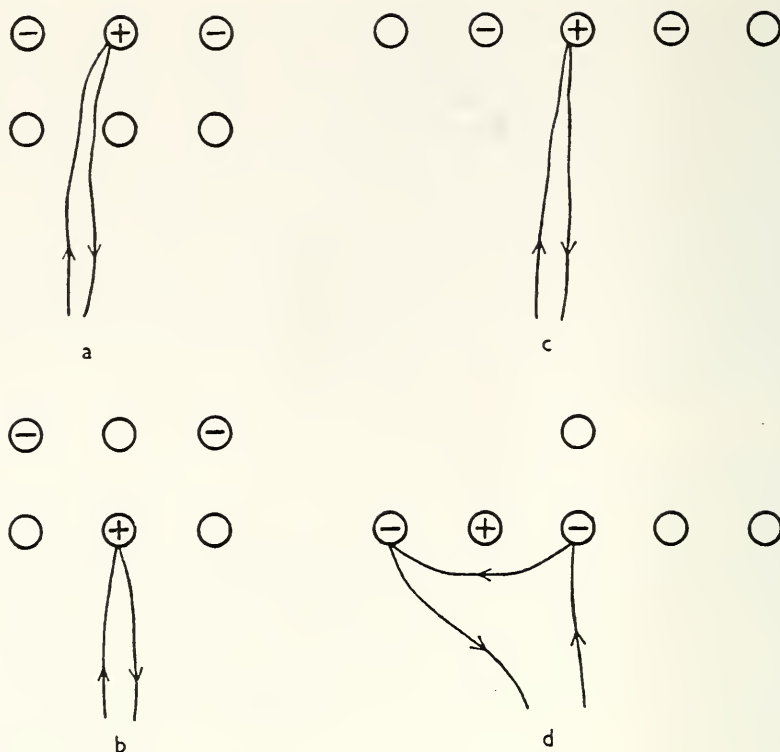
FIGURE 2N—DIEBSCHLAG'S PIGEONS
CENTRE CHOICE AND REGRESSION (From Diebschlag, 1941, Fig. 3)
Posts and pigeon tracks are shown as in Fig. 6, p. 65.

The pigeons are originally trained to choose the centre one of three posts, after previous training to choose the left-hand one of a row.

New posts (differently coloured) are now added in the positions shown in the four figures (the plain circles).

In (a), (b) and (c), the new posts are added symmetrically, and the pigeon can still make a correct centre choice.

In (d) the new posts are added asymmetrically: the pigeon first tries the central post of the whole assembly, and then regresses to the pattern of choosing the extreme left-hand post.

The birds *never* succeeded in generalizing the principle, as can be done by intelligent abstraction (p. 32). The two instinctive mechanisms had to be kept very clearly separated, or confusion resulted. Thus one pigeon was provided with two tables, 1.5 metres apart. On one stood a row of three black posts, on the other a row of three white ones. In two training procedures, the bird was taught to choose the centre post of each row. But if the two rows were put the same distance apart on *one* table, the

bird only visited the row that had been on this table all the time! The resourceful experimenter now drew a chalk line between the two rows. At once the bird was able to perform both its tasks! After between ten and twenty runs, the chalk line could be rubbed out without disturbing the performance. In short the two tasks had to be completely isolated from each other, and the birds were quite incapable of reacting appropriately to the situation as a whole.

Given the instinct system, isolation is not only inevitable but necessary, for in the absence of systematic communication between moods any haphazard mutual interference would be disastrous. By combining total isolation with a very long period of retention of a conditioned reaction (cf. p. 62), the digger-wasp can provision several different nests, each task being carried out quite separately from the others (Baerends, 1941).

This important principle should be borne in mind throughout the later parts of this chapter and the remainder of the book. Unless our own intelligence works perfectly, strict dissociation may be brought about as the only protection against sheer chaos. A failure *either* to develop intelligence *or* to dissociate strictly may be a factor in some forms of madness. It does not, of course, follow that dissociation is ever desirable, or that any harm comes of reopening communication between moods in a constructive way. One widespread symptom is the urge to dissociate professional from 'private' activities, with a tendency to breakdown if these come into intimate contact.

8. *Digger-Wasp Sub-Moods* (Chapter 2, p. 78).

Reactions to the same actual object vary widely with the sub-mood in existence, as is well illustrated in the digger-wasp Ammophila of Appendix 7 (p. 467). When the wasp is hunting, a caterpillar is caught and stung. If the caterpillar is found near the opening of the hole, it is dragged in (p. 467). If found there while the wasp is still engaged in stopping up the hole, the caterpillar may be used as filling material. If the caterpillar is put in the hole while this is being dug, it is simply thrown out as if it were a bit of root or some other obstacle! (Baerends, 1941, 1950; this author is mainly responsible for the important concept of *mood*.)
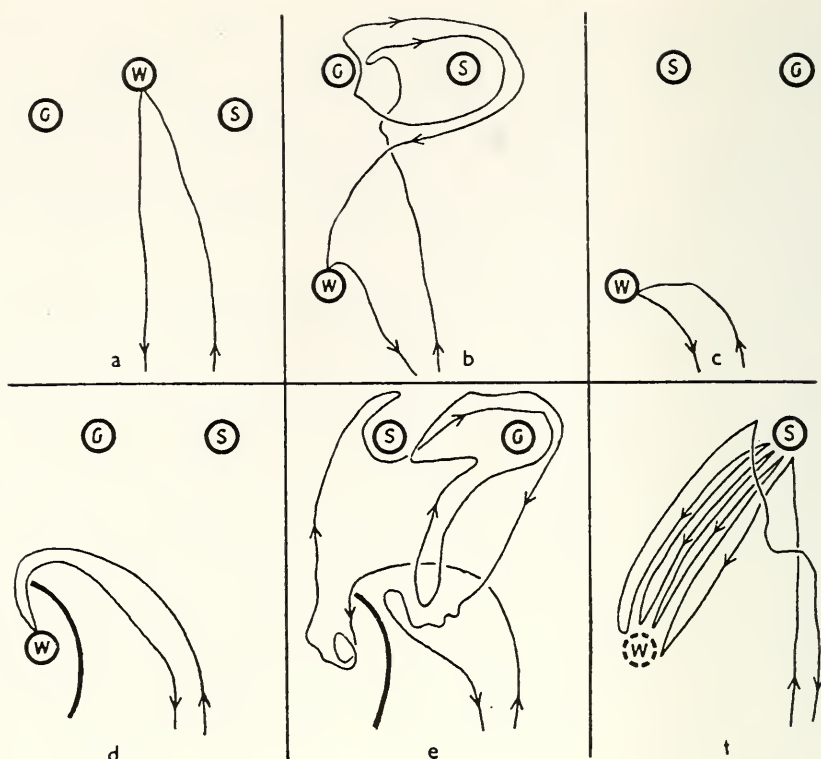
FIGURE 3N—DIEBSCHLAG'S PIGEONS
VACUUM ACTIVITY IN A CONDITIONED REACTION
(From Diebschlag, 1941, Fig. 8)
Posts and pigeon tracks are shown as in Fig. 6, p. 65.
ⓖ = Yellow Post
ⓦ = White Post
ⓢ = Black Post
⟯ = Cardboard Wall
The dotted circle in (f) shows the former position of the now absent white post.

9. *Vacuum Activities in Acquired Instinctive Mechanisms* (Chapter 2, p. 82).

Vacuum activity also turned up in Diebschlag's experiments. He could train the pigeons to choose particular colours. One of these colour experiments is shown in *Fig.* 3N. The bird was first trained to choose the yellow post, and then re-trained to the white one. When the re-training was complete and a detour past the yellow post was ironed out, the track of the bird was as shown in *Fig.* 3Na. The white post was now moved

to the position of *Fig.* 3N*b*, and the result was the track shown in this diagram. The bird first searched around the two (—) posts, not daring to mount either, but clearly showing greater interest in the yellow post, its oldest acquaintance; eventually it found the white one. This elaborate detour persisted for four runs. after which the bird went directly to the white post—*Fig.* 3N*c*. A black cardboard wall, 50 cms. high, placed as shown in *Fig.* 3N*d*, did not disturb this direct route. But (*Fig.* 3N*e*) after seven runs the bird went confidently round the cardboard and— surprise! surprise!—the experimenter had removed the white post alto- gether. There followed the whirligig track shown. The bird explored stubbornly in the neighbourhood of the missing post for about five minutes, and then tried the two (—) posts, again showing preference for the yellow one. Finally (*Fig.* 3N*f*) only the black post was provided. Hungry birds now followed the remarkable trajectory shown; they tried again the detour of *Fig.* 3N*b*. This stereotyped and persistent execution of an old instinctive pattern only occurred if the birds were hungry, and not if they had been fed in their cages. Its totally unrewarding nature did not deter them if they were hungry. Such performance of a stereotyped pattern of activity, regardless of its lack of results, under the influence of a high drive, and in the total absence of one of the releasing stimulus sets (the white post), is precisely what we should ordinarily call vacuum activity. The impression of a hallucination on the pigeon's part (cf. p. 84) comes out forcibly in the *Figure*.

10. *The Fixation of Faust*   (Chapter 3, p. 188).

It is worth seeing how some of the ideas of this chapter appear in the more influential motifs of European mythology. In the hands of the great artist (cf. Chapter 8), a myth can become revealing, for the reality, against which it defends its believers, shines through the disguise, illu- minating it as if from within. In the hope of such illumination, let us look at the supreme myth of modern civilization.

The central myth of modern literature, recurring in a multitude of forms (including Shakespeare's treatment of the Hamlet story—p. 400), is the legend of Faust, the scientist who sold his soul to the Devil, of whom Mephistopheles is at first the agent and in later versions the incarnation, in return for gifts which included the restoration of his youth. It is easy to see in this legend, which appears to have taken shape about the time

of the early Renaissance, a reference to the end of medieval senility with the dawn of science, as well as a foreboding of the destinies of science itself. The supreme modern hero is naturally a scientist—or, more strictly, an alchemist on the threshold of science; and the myth offers at once a warning and a moralized account of the perversion and degradation of the exploratory drive, as the hero abandons his own search and plunges into the meshes of exploitation.

The myth seems to stem in part from much more ancient sources, but it was first committed to literary form in 'a good printer's thriller, published in 1587' (Wayne, 1949). Its first great literary exponent was Marlowe, who in his *Doctor Faustus* already makes plain the starting-point of the whole involvement—the unhappiness of the exploiting Devil, who is made to declare, when asked why he is not in hell, 'Why, this is hell, nor am I out of it'. Here, at a stroke, is the utter lack of real self-esteem from which rationalization and exploitation take their origin; for 'real self-esteem' we may substitute the less arid and really equivalent term '*happiness*'. From this profound diabolical unhappiness comes the compulsion to destroy the happiness of others, as a prelude to their conversion into automata. It is curiously inevitable that Marlowe's play gave rise to the most successful of all *puppet* plays, a version of which first inspired Goethe to conceive, nearly two centuries later, his own masterpiece.

Closely linked with the Faust myth is that of Don Juan, the pseudo-sexual seducer; but the Don is already damned when he begins, while the Doctor's damnation is the theme of his myth. The relations between the two legends have broken through above all in music. The Don Juan theme has been used by countless artists, including Molière, Push-kin and Shaw, but perhaps its supreme expression is Mozart's *Don Giovanni*. Here we have a curious link back to the Middle Ages, for the Abbé Da Ponte, the librettist of the opera, wrote deliberately under the influence of Dante's *Inferno*—as well as under those of 'a little bottle of Tokay', 'a box of Seville tobacco' and 'a beautiful young girl of sixteen. . . . I should have wished to love her only as a daughter—but—' (cited by Blom, 1935).

The Faust myth itself, explicitly and as such, has been handled so often that a list would be a matter for considerable research: one need think only of Berlioz, Boito and Busoni. Of all these treatments, the admirable film of René Clair, *La Beauté du Diable*, best expresses one central aspect of the myth—the envy of *youth* expressed by the old,

which others have treated separately as a potent factor in the competitive attitudes of older to younger generations (for instance, Ibsen in *The Master Builder*). But, for the purposes of this note, the most convenient version to examine is the simplest of all—the *Faust* of Gounod, composed to the admirable libretto of Barbier and Carré, itself a compressed and simplified version of Goethe's *Faust*.*

In order to understand the roles of God and Devil in this opera, we must return to the problem of unstable hierarchies (p. 163). Both would-be exploiters and frightened exploitees find this instability hard to tolerate. The former seek an outside power to restrain their competitors; the latter wish to feel safe to pursue constructive activities. Much of human behaviour can be seen as an attempt to realize the inherently impossible goal of a stable human dominance hierarchy with an absolute overlord, who will regulate competition between exploiters and protect those who are constructively inclined but frightened. A human overlord in many ways fails to satisfy this demand. If he shows the slightest lack of self-assurance, he will be regarded by the exploiters as a competitor to be displaced, and by the timid as an unreliable protector. If he maintains his precarious seat for a life-time, the problem of succession arises, a process liable to be vitiated by such unreliable rules as that of inheritance, or disturbed by outbursts of competition for the vacant place. Such cultures as Venice and Republican Rome have maintained stable oligarchies for long periods, but only in the absence of drastic social change within or interference from outside. Even while they persisted, such oligarchies have been subject to sporadic attempts by would-be dictators—the recurrent Manlius or Marino Faliero; and in the long run they were doomed—that of Rome when her empire expanded, that of Venice when her commerce collapsed.

Recourse may therefore be had to an overlord immune from jealousy and secure from the contingency of death. An abstraction (such as the State) or a deity has often been made to serve as an eternal overlord. Widespread acceptance of monotheism, which permits such a fantasy, has accompanied the most rapidly progressive changes in human history: the continual flux was only tolerated on condition of there being, at least in heaven, a single authority to whom all must bow. In such legends

* Goethe's talent as a playwright was hardly comparable with his poetic genius (cf. p. 36), but the French authors amply made up the deficiency. To examine how they assembled into dramatic scenes the raw material scattered through *Faust Part I* is to watch play-surgery raised to a fine art.

as that of Faust, God has been equipped with attributes designed to serve the purpose of the fantasy: regulation of competition, and protection of the fearful. But here, as everywhere, the repressed returns, in two related ways. Since leadership and hostile dominance are confused in such fantasies, the divine overlord has been endowed with many unpleasant attributes. The monkey overlord only prevents his rivals from *fertile* mating, but the God of the Faust myth frowns on the sexual relationship itself, the great guarantee of human freedom, co-operation and happiness. Meanwhile the envy or insecurity, which the fantasy is to repress, reappears in the form of a challenge by a second divinity. The envious begin to seek a focus for rebellion, the timid a second protector against the first. Thus arises the figure of a second authority—the Devil. The strife between the two may be seen as a reflection of repeated changes in the actual power-groups of society (Chapter 7, p. 324; Chapter 10, p. 432). Belief in an equally matched pair of opposites (God and Devil, Ormuzd and Ahriman), has always radiated from Persia, a site of repeated dispossession of old by new invading cultures and the repeated absorption of the latter; this belief gave rise to many of the heresies of the Christian era, above all that of the Manichaeans.

In the Faust myth, the two antagonists are seen as rival exploiters, competing for the exploitation of man. The competitive element is uppermost in God, and the exploitive in Satan; the former is mainly concerned to crush human initiative, the latter to divert it to destructive ends. If God frowns on sex, the Devil purports to promote sexual relationship, while really offering pseudosex in its place. The antagonism between God and Devil is superficial: they may alternate in winning games, but the only real loser is man. Between them, they form a powerful combination of engines for destroying human happiness, the one preparing the way for the other, just as the moralistic rigours of a rule-ridden family or society may throw a girl into the arms of a pimp and the slavery of the streets.

It is obvious from the mere definitions that the relationship with God is specifically sentimentalized in this myth; there is a pretence that he is really co-operative and not hostile, and that whom he loveth he chasteneth. Elsewhere in literature the Devil may be sentimentalized instead (as in Milton and still more in Byron); but if this is done to any substantial extent there is an exchange of names. Still more rarely, the Devil is presented as constructive but frightened, as in Anatole France's *Révolte des Anges*, where Satan is friendly to man but refuses to accept

the responsibility of leadership, His closing message has indeed some point—'it is in ourselves that we must destroy Ialdabaoth' (that is, the fantasy of an exploitive overlord). The polarization in the Faust myth, where God only is sentimentalized, has enabled many artists to provide penetrating analyses of exploitation, seduction and deception on the part of the Father of Lies. Blinkered on one side, they see clearly on the other.

With this background, we can turn to the plot of Gounod's opera. In outline it is simple. Faust, aged and in despair, calls up Mephisto, who buys his soul, after a struggle, by showing him in a magic mirror the beautiful Marguerite, and promising him youth and the means for making love to her. The two at once leave for her city, Nüremberg. Meanwhile the God of the myth is not unrepresented; his earthly agent is Marguerite's brother, the jealous and possessive Valentine, who, leaving for a war, commits her to the 'protection' of his celestial principal. The exploitation of Faust alone is only a first step for Mephisto; his object is to secure possession of Marguerite as well, his first exploitee being used for securing the second. Here, however, he meets his match, not in the unfortunate lovers themselves, but in God and Captain Valentine. At the first encounter of the rivals, Mephisto cringes before the threat releaser displayed by the captain, who holds up the hilt of his sword in the sign of the cross. On Valentine's departure, easily disposing of his young friend Siebel (left nominally in charge of Marguerite) and of an old and venal duenna, Mephisto succeeds in introducing the girl to the doctor. They fall in love, and consummate their relationship. Mephisto has used real sex as a lure, but it is no part of his intention to allow Faust actually to enjoy it; instead, the Doctor is whisked away on other errands, while the Devil, using his privilege of being in several places at once, sets to work to destroy all hope in the deserted girl. Faust insists on returning, only to meet Valentine in Marguerite's garden. The captain on this occasion forgets to use his sword-hilt, for God is to triumph through the death of his human agent. Faust and Valentine fight, to music reminiscent of Don Giovanni's duel (with the father of a girl he had tried to seduce) in Mozart's opera; and, by means of a foul from Mephisto, the captain is mortally wounded. Doctor and Devil escape, and Marguerite, hurrying to the scene with neighbours, is met by a blast of hatred from her dying brother, whose last act is to curse her. It is this that completes *her* enslavement to the divine side. Meanwhile Faust is hurried off to the orgies of Walpurgis Night, a series of

supremely unenjoyable pseudosexual escapades which are all he is permitted by *his* master. The point is brought out by the contrast between the passionate vocal music of the love scene and the Walpurgis Night *ballets*: in pseudosex there is no communication, but only automatic posturing.

The story is now to all intents over; what remains is inevitable. Marguerite has killed her infant child, and is condemned to death. Faust is allowed to learn of this and to return, for Mephisto hopes to win after all at the last moment. There follows the prison scene, in which the deluded Marguerite refuses to flee with Faust, sings an aria of confidence in God, and is 'saved'. The supreme overlord has won the main battle; the fate of Faust is uncertain; both lovers have been utterly despoiled of their happiness. It remains to add that Mephisto behaves throughout as if he were a benevolent servant—'Dear master', 'Dear Doctor' are constantly on his lips while he manipulates his puppet. We may end by looking in greater detail at part of the First Act, in which Faust's temptation is accomplished. It will serve as a striking vignette of the process of fixation.

At the start of the opera, Faust has already lost nearly all his self-esteem. Aged and broken, he feels that all his explorations have been in vain, and that he has discovered 'nothing'—the first word of the opera. He nearly commits suicide, but throws the poisoned cup from him. (In the imaginative Italian film of the opera, Mephisto uses the same cup for his elixir of youth; we do not know how customary this is in stage performance. Poison fantasies always concern the transmission of false information.) Instead of suicide, Faust proceeds to curse—too indiscriminately—not only God and faith, but also science and happiness. The curse ends in a call for Satan: and Mephisto appears.

Mephisto is got up very nicely with cloaks and swords and things—'a real gentleman', as he puts it himself. He *seems* to display great self-assurance. After a few preliminaries, Mephisto asks the still dubious Faust to name his wishes. Faust, becoming enthusiastic, speaks of youth, pleasure and desire. 'So much the better', says the obliging fiend; he can certainly arrange all that. Faust inquires the terms. 'Practically nothing, practically nothing', says Mephisto, waving them away in advance—the conjuror's patter. Then he states his terms: 'Here I am at your service, but below (là-bas) you shall be at mine'. On the second phrase the music becomes solemn, sinister, and so reminiscent as to suggest direct imitation of the last act of *Don Giovanni*, where the Don is finally dragged down to

hell. The essence of the whole opera, and of all seduction, is contained in this second phrase, and especially in the ambiguous word 'là-bas'. 'Below' or 'underneath' appears to mean 'in hell'; but we recall from Marlowe (p. 472) what that means. While ostensibly Faust is to be master, *underneath* this superficial charade, that is *unconsciously*, he is to be the slave. The ambiguity epitomizes all that we said of condensation, incidental conditioning and hypnosis. The phrase is to act as a hypnotic suggestion, backed by the terrifying solemnity of its music, without any realization on Faust's part of what is being transmitted.

Faust's immediate reaction is to the emotional content—he is terrified. 'What! You tremble!' cries Mephisto, and begins to sing very volubly. Before Faust can pause to notice what is happening, the music changes completely in character, and Mephisto is playing his trump card —the vision of Marguerite. As Faust gazes, oblivious of all else, on the enchanting vision, Mephisto gently points out that he and he alone can make it, for Faust, a reality: his words are sung against an orchestral treatment of the beautiful subject later to be used vocally in the love scene. Faust, scarcely listening, takes the cup from the tempter's hand and drains it, toasting Marguerite. The transformation takes place, and the rejuvenated Faust expresses his joy in the music of his original request for youth, sung this time as a duet with Mephisto, in whom the words assume an undercurrent of both envy and triumph. Faust is no longer a scientist, an explorer, a free man. Henceforward he is a fixated puppet. And all this (for the decrepit age is a twist of the myth) to achieve something which any man can achieve, really and completely, by himself and only by himself—the initiation of a sexual relationship with a woman who, it will turn out, wants it as much as he. There is no important aspect of fixation which does not emerge somewhere in this powerful scene; we must bear in mind, throughout the rest of the book, the ruin of intelligence that is epitomized, in its ultimate extreme, by the story of Faust and the Devil.

11. *Elizabeth I, Mary and Essex*   (Chapter 4, p. 199).

The story may very briefly be continued as follows. (For the facts used here and on pp. 197–199, cf., for example, Neale, 1934, 1953, 1957; Pollard, 1934; Strachey, 1928; Morris, 1955; Waldman, 1946). The two most critical periods in the development of the individual's behaviour

are the time of onset of speech and the period of adolescence (p. 219). Each period was associated for Elizabeth I with a frightful shock. In 1536, when she was not yet three years old, her father executed her mother, Anne Boleyn. In 1549, aged fifteen, she was living in the household of her step-mother, Catherine Parr. Edward VI was reigning as a minor under the protectorate of his maternal uncle, Edward Seymour.

The Protector's brother Thomas, the Lord Admiral, was married to Catherine Parr, but attempted to move still nearer the throne by trying to seduce Elizabeth. The Admiral was suspected, impeached and executed by his brother. Elizabeth, in grave danger herself, defied the Protector with all her superb self-assurance, and escaped. Her perils were by no means over; in the next reign, that of her sister Mary Tudor, she escaped only by ceaseless vigilance, extreme discretion and her sister's forbearance (which extended at one time to suppressing evidence against her).

The two crises of Elizabeth I's *reign* were marked by the executions of Mary Stuart, Queen of Scots, and Robert, Earl of Essex. The former event immediately preceded the Spanish Armada, and the latter occurred at the very end of the reign.

Mary Stuart escaped from Scotland to England in 1568. She remained in prison for about eighteen years (approximately the length of time from Henry VIII's marriage to his final initiation of divorce proceedings against Catherine of Aragon). During this time Mary Stuart plotted, with indefatigable repetitiveness and fathomless incompetence, to murder Elizabeth and seize her throne with the connivance of foreign powers. The execution of Mary was an act of self-defence. Its delay for eighteen years was no doubt turned to advantage. It facilitated bargaining with Scotland, it provided a focus for plotters who could be, from time to time, swept into the Government's net; when it finally occurred, it gave the signal, at just the right moment for England, for the launching of the Spanish Armada. With Tudor efficiency, the delay was integrated with the needs of the time. Nevertheless, Elizabeth's extreme hesitation, vacillation and ambiguity over the orders for the execution itself were certainly not wholly rational. The name and career of *Mary* would serve as key stimulus for several fantasies. Elizabeth's aunt Mary, Duchess of Suffolk, had been for a short time Queen of France—like *Mary* Stuart. Elizabeth would no less be reminded unconsciously of her own dangerous position under *Mary* Tudor, who had spared her. Finally, the

nymphomanic and indiscreet pseudosexual adventures of Mary Stuart would remind Elizabeth of the charges against her mother, Anne Boleyn.

The early years of Elizabeth's reign were marked by her affair with *Robert*, Earl of Leicester, her exact contemporary, whose acquaintance she had made in captivity in the Tower in her sister's reign. (We shall not here examine the nature of this affair, or the general question of Gloriana's virginity or otherwise, beyond noting, with Strachey, that her earliest experience of sexual relations was associated with exploitation by a seducer and imminent danger of death.) The later years were similarly marked by the Queen's relationship with *Robert*, Earl of Essex and Leicester's step-son. The Queen was by this time an elderly woman. We have seen (p. 153) that in this relationship she displayed less than her usual intelligence, and why. The execution of Essex was a blunder that might have been averted, and her distress at it seems to have hastened her death. The Earl's career had been a series of military and political fiascos. In the last months, Elizabeth seems to have lost control of events. Not only her freedom of intelligent action, but even her capacity to act out an instinctive fantasy in precise detail, may have been thrown out of kilter. The interval between Mary's execution and the Earl's was about fourteen years (9 February, 1587 – 25 February 1601); that between the executions of Anne Boleyn and Thomas Seymour was about thirteen years. The two couples of executions were separated by a little over half a century—slightly less than the age at death of Henry VIII.

The execution of Mary Stuart was to have a sequel in turn in new automatisms. Somehow the fantasy was passed on by her son James (who was not brought up by her, but whose childhood was dominated by her story—p. 410) to his son Charles I. This King contrived to repeat his grandmother's experience with considerable accuracy, being seized by the Scots, sent to England, and imprisoned there. He proceeded to plot as incorrigibly and incompetently as his grandmother until he followed her to the scaffold. Beyond this we need not here follow the further workings of royal destiny and behavioural inheritance. Anyone can find similar examples. At first, they may seem to be the factitious result of clever selection and juggling with names and dates; but the more detail one accumulates the less easy this explanation becomes, especially when viewed in the light of later passages of Chapter 4.

12. *The Study of Vertebrate Courtship* (Chapter 4, p. 201).

Since this work is so extremely recent, a few detailed references will be worth while. It takes its starting-point from the classical papers of Lorenz (1935, 1941). The specific hypotheses which led to the concept of the F.A.M. system were first formulated by Tinbergen in 1952 (*a*, *b*). The result was a veritable explosion of research, which established the hypotheses in a large number of species. An exception was found almost immediately, to prove the rule: the absence of courtship ceremony in many frog and toad species (other than that necessary for assembling the animals at the breeding site), was shown to be associated with two special properties of the species concerned: their complete suppression of flight reactions during the breeding season, and the fact that the only fighting in these species takes place between males *on the body* of the female, who cannot therefore herself serve as a releasing stimulus for attack (Russell, 1952—cf. Chapter 2 and Appendix 4, p. 461). Principles usually demonstrated in males were extended to females by Spurway (1956), who was thus able to vindicate the earlier classification of courtship ceremonies by Lorenz, and integrate it with the new findings. The new theory was put forward in its most complete form by Morris (1956). Among other papers on a great variety of species, we may mention the following selection as an indication of the great activity in this field in the past five years: Tinbergen, 1953 *a*, *b*; 1954; Tinbergen and Moynihan, 1952; Morris, 1952, 1954 *a*, *b*, 1955 *a*; Hinde, 1953 *b*; Moynihan, 1955; Moynihan and Hall, 1954; Baerends *et al.*, 1955; Baggerman *et al.*, 1956; Marler, 1956; Weidmann, 1956; Wood-Gush, 1956; Andrew, 1957; Forselius, 1957; Hoogland *et al.*, 1957.

13. *Imprinting and Parental Protection* (Chapter 5, p. 252).

In the lower animals, protection of young by their parents is often of first importance for their welfare, and in herd animals the dominance status of the parent may be a matter of grave concern for her offspring. The results of defect here are illustrated by the observations of Collias (1956) on goats. 'A mother of low dominance may be driven from the vicinity of her kid by larger, stronger goats. . . . The new-born kid may then soon become lost in a crowd of goats, and . . . tries to suck strange females, males and older kids of either sex, alike. It is promptly butted

away in most instances, receiving particularly bad treatment from the older male kids. This adverse treatment very probably serves to condition the kid against older goats, making difficult subsequently the establishment of a normal bond to its own mother'.

Inadequate protection against (e.g.) grandparents (p. 253) may have serious consequences for the human child. We have seen (p. 166) that signs of fear or incompetence in a leader are occasions for acting out, and parents are of course leaders *par excellence*. While considering the effects on the child of direct threat or revulsion on the parent's part (as a reaction to the child himself), we must also take into account the consequences of fear on the parent's part *vis-à-vis* a third party. One patient had constant trouble with her daughter in contexts of tidiness and cleanliness of the house. The patient was unable to give the little girl firm instructions because she was really concerned, not with the comfort and pleasant appearance of the house, but with the feared reactions of neighbours (ultimately of destructive criticism by her own parents, for which there was evidence in this context). She would therefore, for instance, tell her daughter not to rumple the stair-carpet, but in a tone of voice which betrayed her own underlying panic. The daughter would at once do the forbidden thing, and the patient would then scold her, being now able to reduce her own panic by identification with the critics. The child was compelled to act out as a reaction to her mother's panic, which must have been more alarming than the direct scolding. (See also p. 242.)

Low self-security in a child may therefore be induced in two different ways—either by direct threat from the parent, or by the parent's submissiveness to real or imagined third parties. Of two parents, one may be less directly hostile but unable to protect the child from the other. The outcome of very low self-security will be an urge for protection long after this is really necessary; in this way an individual may be trapped into the role of exploitee (p. 160). Self-*confidence* may now become conditional on the real or imagined good will of a real or imagined protector. The urge for protection raises questions that we cannot explore here at length; it may cause a child to become fixated upon someone hostile to him if he expects from that person protection against fantasied hostility on the part of others (p. 259).

It now becomes interesting to consider what is called *imprinting* in lower animals. Craig and the Heinroths discovered that, if the young of many bird species were reared by man or by parents of other bird

species, many of their social reactions in adult life were transferred to the 'foster-species'. Lorenz (1935) first systematically studied the process responsible, and may be credited with its discovery as a fundamental instinctive mechanism. He showed that in such species there were critical periods in the early life of the individual, during which a very rapid and relatively irreversible conditioning took place; as a result, to put it picturesquely, the individual 'learned' to what species it belonged. To whatever species it was imprinted in this way, to that species it showed all its social reactions in later life, and the criterion of total imprinting is the demonstration that an individual imprinted on the wrong species *will not mate with members of its own species when it is mature*. An excellent literary illustration of imprinting is the reaction of Titania to Bottom in *A Midsummer Night's Dream*.

Since 1935, there have been several further studies of the process, and other comparable cases of rapid, relatively irreversible conditioning, restricted to critical periods, have been found. (For instance, if fish of certain species, when they first breed, have their offspring removed and young of other species substituted, they will fail to rear later broods of their own young—Baerends and Baerends-Van Roon, 1950. Again, some predatory species, if reared along with members of a species normally their prey, will fail to prey on this species in later life—cf. Leyhausen, 1956.) Most work, however, has been done on imprinting in uniparental bird species in which the young are mobile very soon after hatching, and begin early to *follow their mother around*. In such species (e.g., ducks) failure of the ducklings to keep close to a mobile parent may expose them to many dangers. Imprinting to their own species is usually found to take place when they begin to follow their mother. At this stage they react, by following, to objects with a few fairly general key stimuli, and become imprinted to whatever objects (with these general characteristics) are supplied to them; they 'learn' the finer characteristics of these objects, and in later life treat corresponding objects as members of their own species.

The phenomena of following and imprinting have been studied methodically in mallard ducklings by Hess and his associates (Ramsay and Hess, 1954; Hess, 1957). Hess used ducklings hatched and incubated without contact with humans or other animals, and at no time exposed to such contact—everything was done by a sort of automation. At various ages, the ducklings were exposed during a definite period to a model of a *drake* of their own species (in nature, they would follow,

and be reared by, a duck), equipped with an atypical voice (supplied from a tape record). This was the *imprinting period*. Some time later, they were tested with the drake model and with a model of a duck giving her natural call. This was the *test period*. The strength of their imprinting to the drake model was measured by their tendency, in the test period, to follow this in preference to the duck model under various conditions. (Hess has not yet, at the time of writing, studied the social behaviour of the birds in adult life, and has not used a model of a different species. It is to be hoped that his exact and mechanized methods will be extended to take in these problems.)

By spacing his imprinting period at different time intervals from hatching, Hess could compare the strength of imprinting at different ages. He was able to localize it very exactly to a period between nine and twenty hours from hatching. Before and after this period, imprinting was negligible; during the critical period it reached a peak of efficiency at sixteen hours from hatching. He also showed that the duration of exposure to the drake model in the imprinting period made no difference, within wide limits, to the strength of imprinting. But this strength was the greater, the more the ducklings had had to exert themselves in following the model—this was shown, for instance, by sometimes placing obstacles in their path. This result Hess himself interprets in terms of feed-back reports from the ducklings' locomotor musculature; it might alternatively be explained by increased stress or *fear* associated with the difficulty of following a natural protector. (When emergency drives are at high levels there are physiological repercussions—such as high output of the hormone adrenaline—which might affect the strength of a conditioning process in the central nervous system: here we may have a clue, worth following up, to the factors governing the rigidity of instinctive mechanisms—Russell and Russell, 1957, p. 195.)

Before the start of the critical period, the ducklings are barely mobile. After the end of this period, following (and hence imprinting) is prevented by the appearance of *flight* (escape) reactions to just those large moving objects which would earlier arouse following and imprinting. We may therefore suppose that from nine to twenty hours the duckling shows no overt signs of fear of large moving objects, but that instead a latent fear aroused by these is used to power the process of imprinting, so that (in nature) danger situations in future will be connected with *following a specific protector*. This hypothesis would be strengthened if we found that a drug known to suppress fear (and interfere with its

physiological repercussions), when applied during the critical period, *prevented imprinting*. But this is exactly what Hess has shown. The tranquillizing drug meprobamate (cf. p. 342), when administered more than twenty hours from hatching, was shown to suppress the fear reactions typical of that period. When this drug was administered during the critical period, it reduced the strength of imprinting to a very low level. (See also Russell and Burch, 1959. Hess himself interprets his results differently, and another tranquillizer, chlorpromazine, failed to produce the effect. The facts in detail, however, do not exclude our interpretation.)

We therefore arrive at the general notion that at certain phases of an animal's life it must develop an instinctive mechanism of keeping close to something which would appear frightening, but which in fact offers a guarantee of protection from dangers outside. A counterpart of the following reaction may occur in later life in herd animals. Chance (1955 *b* and personal communication) has provided some evidence in support of the view that in social mammals threat may have a partly *attractive* effect on the animal threatened, and he has suggested that this weird mechanism may be a factor in the aggregation of monkey colonies. The evolutionary rationale of this would appear from our discussion earlier of dominant animals as leaders and sentinels (p. 166). The more complex human form of this fixation on tyrants deserves more discussion than we have been able to give it in this book.

We must finally note the implications of all this for mating in animals. We may suppose that the still rather general choice of 'one's own' species, developed in the animal equivalent of childhood, is supplemented and further restricted by the processes of courtship and pairing in the animal equivalent of adolescence (p. 204). If these phases are caused to overlap, we may predict the occurrence of *sexual fixation on a parent*. It is well known that domesticated species extend their breeding seasons (p. 140); they also become sexually mature much earlier than their wild counterparts. Lorenz (personal communication) has studied the effects of having a domesticated male gosling reared by foster-parents, of which the gander is wild and the goose partly domesticated. In these conditions the gosling becomes sexually mature before his social bond with his mother is broken. He proceeds to court her. Since she, too, is receptive over more of the time than a wild goose, she accepts his advances. The wild gander, who has not yet come into his breeding phase, does not object—until his own season begins, when King Laius appears on the scene, and sparks fly in this avian Thebes! (cf. Chapter 8). That premature

sexual arousal, occurring before the individual becomes independent of parents and before he extends his social activities outside the family, may result in sexual fixation on parents, is a notion we shall have to bear in mind as a background to Chapters 6 and 8.

As a pendant to this appendix, we may mention a cartoon film we once saw, which grimly expressed the theme of fixation on a hostile 'protector'. In this film a duckling was imprinted on a cat; a mouse, who tried repeatedly to convince the duckling of his dangerous error, was as repeatedly foiled by the instinctive nature of the mechanism! The role of the mouse—obviously conceived as a sort of psychoanalyst—was obscure, as the third party usually is in any representation of a threefold relationship.

14. *Freud and his Theories* (Chapter 8, p. 393).

> 'Moi je ne suis pas Freudiste'
> Sigmund Freud (*apud* Reik, 1949)

This book would be incomplete without some special discussion of the greatest of all students of human behaviour. The greatness of Freud was not like that of Darwin, which consisted in such clarity of thought that we can scarcely fault a single sentence of the *Origin* a century later; rather it was an unparalleled courage. 'There is some courage and boldness locked up in me', he wrote once, 'that is not easily driven away or extinguished. When I examine myself strictly . . . I perceive that Nature has denied me many talents and has granted me not much, indeed very little, of the kind of talent that compels recognition. But she endowed me with a dauntless love of truth. . . .' (See Jones, 1954, p. 131.) The passage shows his phenomenal modesty, the weakness of the idealist; to the end of his career, he never fully appreciated his own achievement, while again and again he grossly over-estimated that of others. But despite this strain of self-depreciation he knew at least relatively when and where he excelled; in 1931 (Freud, 1932) he was able to write thus about his masterpiece, *The Interpretation of Dreams*: 'It contains, even according to my present-day judgment, the most valuable of all the discoveries it has been my good fortune to make. Insight such as this falls to one's lot but once in a life-time.' In ascribing to himself the particular quality of courage, he was profoundly right; and it was this that enabled him to make the first important scientific contribution to the

study of human behaviour. Nowadays it is fashionable to detract from his originality, by showing the presence of many of his ideas in earlier authors. But none of these ever contributed, as he did again and again, the key, the essential observation. Dostoievsky wrote of unconscious processes; but it was Freud who discovered repression, and it is only in terms of this that the notion of unconscious processes acquired value as a source of new discovery. It was the same with many other Freudian achievements.

The set of hypotheses making up Freudian theory have the characteristics of all good scientific hypotheses; they pin-point the crucial observations in terms of which they themselves can later be modified and winnowed. It is thus that Freudian theory differs from that of all other 'schools' of psychotherapeutic doctrine. We have not considered the latter in this book. Freudian theory, however, does deserve examination. As we have shown in several places in this book (pp. 269, 435), the work of Freud is always invaluable in showing where the key observations are to be looked for; the theory itself requires usually only to be turned upside down. It is not surprising that in the study of human behaviour scientific theories have come to be treated as quasi-religious doctrines, so that it is regarded as heresy by the faithful to use Freud's methods in overturning his theories. This curious situation is not found elsewhere in science; nor need we be deterred by any such irrational awe from paying Freud the greatest compliment we can pay to any scientist— the correction of his theory.

The full-length study of Freud's personality, and of his theory in the light of this, will be a fascinating task, for which ample materials are available, though here we shall not attempt a project deserving of several books to itself. We have not only his own exceptionally honest and communicative works, but also one of the best biographies ever written of any man (Jones, 1954, 1955, 1957), full of the most intriguing facts, carefully and objectively recorded, on which to base a very full analysis. Here, without any pretence of even provisional completeness or finality, we shall mention one or two points which will merit special attention.

Freud was above all an artist manqué—no, the expression is inexact, for he wrote splendid prose, justly rewarded with the Goethe Prize, which so much pleased him; but nevertheless, an artist whose imagination was in some way constricted. In this—and only in this—he is momentarily reminiscent of Plato. The Athenian began as a dramatist, but then

burnt his own plays and became a philosopher, exhibiting a peculiarly violent hostility to poets, whom he banished from his appalling 'Republic', along with musical composers—except only the ancient equivalents of Sousa, the composers of marches for the Spartan red-coats. Thus it came about that the most gifted of all Athenian writers flung away his talents in the exposition of the most complete philosophy ever constructed for cynics—which, by a curious irony, was to become known as the 'idealist' philosophy. Even the link between attitudes to humans and attitudes to animals (p. 336) can be spotted in Plato's work, specifically in that passage of the *Republic* where he complains so bitterly of the shockingly free manners of Athens, where not only slaves but even domestic animals walked on the pavements, instead of in the mud in the middle of the street. His own brief experience of life as a slave does not seem to have taught him much, and his system is the direct cultural ancestor of every totalitarian philosophy with which the world has since been plagued. It is with a peculiar sense of frustration that one reads the work of Plato. The content is irrational to a degree—but what more than Shavian stage-craft! The *Symposium*, his finest work, is in everything but its content a dramatic masterpiece, and impresses one with the tragic waste of a talent which might have surpassed even those of Aeschylus, Sophocles and Euripides. 'Cut is the branch that might have grown full straight, And burned is Apollo's laurel-bough, That sometime grew within this learned man. . . .'

Freud was an idealist and not a cynic, and he contributed no philosophical deceptions but splendid scientific discoveries. Yet there was in his composition something of this malaise of the baffled artist. It appears most obviously in his attitude to music, which he seems to have profoundly confused with pseudosexual, and especially incestuous arousal. It is true that he was able to help Mahler in a context of mother fixation (p. 195). But there is another curious episode. In Paris, he visited a certain woman, the wife of a doctor who lived in Austria. ' "The unhappy woman", he wrote, "has a ten-year-old son who after two years in the Vienna Conservatorium won the great prize there and was pronounced highly gifted. Now instead of secretly throttling the infant prodigy the wretched father, who is overworked and has a house full of children, sends the boy with his mother to Paris to study at the Conservatoire and get another prize. Just think of the expense, the separation, the breaking-up of the household." The name of the youth who escaped that recommended fate was Fritz Kreisler!' (Jones, 1954, p. 206). Here is

a touch of Laius. Now Freud's mother, we learn, 'was very musical' (*ibid.*, p. 20). When Freud was an adolescent, his mother induced one of his sisters to practise the piano, 'but, though it was at a certain distance from the "cabinet", the sound disturbed the young student so much that he insisted on the piano being removed; and removed it was. So none of the family received any musical education, any more than Freud's children did later. Freud's aversion to music was one of his well-known characteristics. One well remembers the pained expression on his face on entering a restaurant or beer-garden where there was a band, and how quickly his hands would go over his ears to drown the sound. Yet, as we shall see, this is not the full story' (*ibid.*). When he was twenty, he censored the reading of his younger sisters (warning them against Balzac and Dumas), and when one of them had given a performance on the zither at a party, he wrote her a censorious letter, warning her against becoming vain and coquettish (*ibid.*, p. 23. We must hasten to warn the reader unfamiliar with Freud's own writings or with the whole of Jones's biography that Freud was not the objectionable prig these extracts would suggest; they are deliberately chosen to indicate an emotional context in which he was *not* his usual charming self.) In later life Freud did enjoy going to the opera (hence Jones's remark: 'this is not the full story'). But 'the operas had to be by Mozart, though an exception was made with *Carmen*' (*ibid.*, p. 362). It seems not too far-fetched to suppose that an otherwise cultivated and appreciative man living within easy reach of Bayreuth was defending himself in particular against Wagner. (Was it a return of the repressed that led him to such close association with a man—Hans Sachs—named like a Wagnerian hero?) *The Valkyrie* was composed when Freud was in his early twenties. It would have had a formidable impact for one so terrified of seduction by his musical mother; for, in this opera, music, brother-sister incest and Freud's own name (Siegmund) come together. That name was a classical example of parental intentions conveyed in the name bestowed on a child (p. 195). It is derived from 'victory' ('Sieg') and 'mouth' ('Mund'). It was indeed as a communicative writer that Freud was to triumph, but so profound were his Oedipal involvements (cf. above on Kreisler) that we may well suppose 'victory' to mean 'victory to be obtained for mother by the death of father'. As a child he had a nasty accident which injured his jaw, and he was eventually to die of cancer of the mouth.

Freud seems to have been rather fortunate in his father, a man of some

sense of humour and good-will towards his son. The difference between Jewish and (e.g.) Prussian patriarchy is well shown in a little anecdote about old Freud, who met a father and son of his acquaintance one day in the street, and heard the son contradicting his father. ' "What", he said laughingly, "are you contradicting your father? My Sigmund's little toe is cleverer than my head, but he would never dare to contradict me!" ' (*ibid.*, p. 21). The Jewish son is permitted to exceed his father in ability, though not in status within the family; and this general cultural pattern may help to account for the enterprise and relatively freely expressed talents of Jews (cf. also p. 440). In contrast, Freud's mother seems to have been formidable indeed; she used regularly to visit him on his *birthday* to the end of her life—reminding him annually of his role as her instrument. When Freud was only six, she told him that we were made of earth 'and therefore must return to earth. When he expressed his doubts of this unwelcome statement, she rubbed her hands together and showed him the dark fragments of epidermis that came there as a specimen of the earth we are made of. His astonishment was unbounded. . . . As he put it later: "I slowly acquiesced in the idea I was later to hear expressed in the words, 'Thou owest nature a death' " '. Jones, from whom this passage is taken (1954, p. 18), notes that this is a misquotation from Shakespeare, where the word 'God' occurs in place of 'nature' (Henry IV, Part I, V, i—spoken by the Prince to Falstaff, who replies, after the Prince has left, with the magnificent 'Honour' soliloquy; and Henry IV, Part II, III, ii, where one of Falstaff's recruits uses a similar expression). The misquotation acquires a sinister force when we reflect on the universally feminine personification of nature. The survival of this episode enables us to understand the most bizarre—indeed Gilbertian—of all Freud's theories: the notion of an *innate* instinct to seek death (but to seek it, as he admitted, by a long detour—presumably in order first to implement his mother's instructions). In typical idealist fashion, Freud seems to have resisted a total mother identification; this influence was to kill him painfully in the end. Of his profoundly Oedipal situation, we catch one more glimpse after the birth of his younger brother. His father called a 'Family Council' to decide on a name for the baby, and Freud carried the day with the suggestion of 'Alexander', in support of which 'he recited the whole story of the Macedonian's triumphs' (Jones, *ibid.*, p. 21). Alexander was the son of the appalling Princess Olympias, almost certainly responsible for the murder of his father; the prince was wholly fixated on his mother (of whom he must have been terrified);

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he took care to send her the lioness's share of all his booty, displayed a chastity that astonished his contemporaries, and fought his way to the ends of the earth to escape her, only to die almost as young as his hero Achilles (whose mother Thetis had bathed him in the water of immortality, but left his heel undipped, and so caused his ultimate death). It was in vain that Freud tried to pass on this role to his younger brother: he remained his mother's 'favourite'.

In approaching Freud's theories, we must remember at least that he was profoundly fixated upon his mother—so much so that he constantly felt the mother-son relationship to be the one ideal and perfect one—and that he confused creative activity with this incestuous appeasement. In consequence, while making all the right and revealing observations—which escaped everyone else—he repeatedly put just the wrong interpretation upon them. Unable for a moment to contemplate the way in which his mother must have infected him, he saw the id as something innate and inherent, reviving in a new form the doctrine of original sin. His father seems to have been, like most of his cultural group, proconsciously strict and respectable, and hence Freud was able to see the parental origin of the superego. But since he believed the id to be innate, he was forced to recommend the retention of a superego to keep it in control, and thus was irrevocably committed to approval of an irrational system; similarly, to keep his mother-identification at bay, he actually recommended an identification with father as desirable for a man. When the crucial role of pseudosex was forced upon his attention, he mistook it for real sex; and from this a most curious sequence of misinterpretations evolved (1905). For he was led to suppose that real sexuality developed out of its perversions! He supposed that the child was, as he put it, polymorphously perverse from the outset—sadistic, masochistic, scoptophiliac, exhibitionistic and so forth—and that sexual behaviour developed by a sort of taming process, whereby these weird elements were sorted and kept in balance. He could not see that all these perverse embroilments might well have arisen by the time a person was adult, through a sequence of pathological influences, and that it was the *parents* who were polymorphously perverse, and who first projected and then transmitted these disturbances.

The further defects of his theory were facilitated by an unfortunate conception of the brain in terms of interacting *energies*. Such conceptions are useful for predictive purposes at the start of a new science; Lorenz (cf. 1950) has used them to great effect in the first systematic study of

animal behaviour—but always with the explicit reservation that he was only using a convenient analogy, which might in time prove misleading. Freud, unfortunately, was misled by his own picturesque notion of the brain as a mechanical system of energies to be suppressed or canalized. We can hardly complain of this, for a more rational view of the brain's activity was hardly possible until the work of the cyberneticists, decades after Freud's main work was done. Real sex and the exploratory drive are closely related, because both depend on the activity of the neocortex (p. 210). Freud had already (like everyone else in the world) confused real sex with pseudosex; and he was led by his energy model to think of creative intelligent activities as supplied with *energy* or *motive power* by a sex drive, which he called the *libido*. Defect in sexual activity must in fact mean defect in intelligence, but to Freud there seemed to be a supply of energy which must be shared between the two systems. He thus produced the extraordinary theory of sublimation—that great creative achievements were possible by suppressing sexual activity, so that its 'energy' could be diverted to intelligent activity. (There is, as usual with Freud, a grain of true observation in all this. Since an individual must appease his parents by reducing both his own sexual enjoyment and his own creative activity, he may be able to move with limited freedom in one direction at the cost of intense appeasement in the other.) Thus Freud was trapped into the weird delusion of the mystics—that suppressing sexual activity is a good and desirable thing, instead of the most self-destructive of processes. The sublimation theory has another aspect. It expresses the infantile fantasy that faeces are valuable, and can be moulded into objects of great worth (cf. Chapter 6)— a prominent explicit feature of Freud's symbolic theories, for he always took infantile symbols at their face value. This aspect emerged in a witty remark by the husband of one of our patients, who was well versed in Freudian theory. He observed one day in his lumber room a collection of oddments out of which he had intended to make some furniture (he was an accomplished carpenter), but which he had simply left there; he remarked ruefully that he had repressed the stuff instead of sublimating it. In the theory of sublimation, considered as a fantasy system, there are several double-takes and double-bluffs; for what is really being discussed is not real sex but pseudosex, which is thus made out to be of value.

Hence arose a set of extraordinary derivations. Scientific exploration was supposed to be the result of thwarted sexual curiosity; great painting a consequence of a thwarted wish to smear faeces around; great

literature a result of suppressed exhibitionism. It is these misguided notions that have naturally frightened many artists and scientists away from psychoanalysis, under the impression that such treatment will remove their most precious gifts. Freud himself avoided observing that psychoanalysis in fact enhances creative activity, by deliberately refusing to take gifted patients—making the single exception of his very brief treatment of Mahler (p. 195), which should already have sufficed to correct his view. For of course pseudosexual curiosity can only hinder the scientist, unconscious preoccupations with faeces can only chain the imagination of the painter, and exhibitionist motives can only confuse and distort the output of the writer; the first step in their freedom is taken when they can communicate about these perverse impulses, and the second when the impulses themselves lose their compulsive effect. The notion that intelligence is a by-product of pseudosexual perversion is the most profoundly misguided of all those of Freudian theory. Similarly, co-operativeness between men was ascribed to sublimated homosexuality; when in fact homosexual involvements, dissociated from overt sexuality, introduce and maintain competitive-exploitive trends in the social relations of men.

Another consequence of this confused way of thought is the notion that the individual can have no essentially new feelings after the age of five, all his subsequent development being merely a series of variations on these early pre-determined themes. Thus Freud implicitly regarded the human brain as fully specialized at this early age, and failed to envisage the introduction of progress into the mechanism. (Spengler had a similar attitude to human cultures—p. 375.) One special aspect of this was Freud's total neglect of the experiences of adolescence, which he declared to be of no importance for the development of the personality. We know very little indeed of his own adolescence. He himself gave us the priceless maxim that when a patient declares something of no importance, it is, on the contrary, crucially important to him. And Freud's adolescent experiences must therefore have been, if anything, more than usually critical in shaping his later development.

Finally, the Oedipal defence inevitably lured Freud hook, line and sinker. Here again it was he who detected the fantasy, and it has been a natural next step to label it for what it is; for, once it was out in the open, no biologist could take it seriously as an innate, inherent system, and we have therefore been able to track it to its origin in a social situation. A great anthropologist, aware of other cultures besides our own, was the

first to see something wrong with his formulation (p. 303). But with what unerring genius did Freud select the crucial play for unravelling the strands of European culture! It is significant that one of his greatest leisure interests was Egyptology—an interest he must have sternly restricted, to avoid seeing its profound relevance to his own work.

Since Freud supposed the id to be innate, it was inevitable that he should view with little hope the future of his species. He was oppressed with what he felt was the 'intractable nature of man', as he put it in that fine essay (1933) in which he upheld the scientific method against dogmatic ideology. His later work, after he had encountered so much hostility, breathes a spirit of disillusionment, and he was unable to look forward to the great expansion of human freedom which must eventually issue from his own life-work. Alike in his later writings and in the recollections of his friends, one senses a despair for the future of humanity, if more tranquil not much less tragic than that of Wells. And yet what must above all impress us about Freud is his continual return to his observations. Never entirely satisfied with his theories, he turned again and again up to the end and sought to grapple afresh with his material. A striking instance occurs in his last important book (1933). Overt anxiety, we can now see, becomes acute when pseudosexual appeasement is blocked. Freud observed the connexion between overt symptoms of anxiety and inhibition of overt sexual activity, and was led to the conclusion that the sex drive (libido) was converted into anxiety when penned up (a typical instance of his mode of thinking in terms of hydraulic forces). But he was never fully satisfied, and in an essay in this book (1933) he returned to the subject with an uneasy speculation that perhaps the anxiety might lie deeper, after all, than the sex drive itself. Thus he was within an ace of grasping the central principle we have used to reinterpret his whole theory—that pseudosex begins as an appeasement under threat. So near he came to seeing the real significance of his life's work, this Moses, who died in despair within sight of the promised land of unending progress and adventure, to the brink of which he had led us all. It will ill become us, as we enter upon this inheritance, to forget the disillusioned old man to whose 'dauntless love of truth' we owe the exciting prospect now before us. There was indeed some courage and boldness locked up in him, which was not easily driven away or extinguished.

15. *Hamlet and Faust* (Chapter 9, p. 401).

Several clues suggest that, when composing *Hamlet*, Shakespeare had Marlowe's *Doctor Faustus* in mind. Shakespeare was deeply influenced by his greatest contemporary poet; traces of Marlowe can be found in several plays (Muir, 1957), and in *As You Like It* (Act III, v, 79–80) there is a straight quotation from *Hero and Leander* ('Dead shepherd, now I find thy saw of might,—"Who ever loved that loved not at first sight?" '). The player's Hecuba speech in *Hamlet* is so reminiscent, in style and content, of the narrative of Aeneas in Marlowe's *Dido, Queen of Carthage* that one of us noted the resemblance in an unpublished essay while still at school: specialists seem to accept it as a genuine echo (Muir, 1957). Marlowe himself, like Hamlet, died young in a fight with some suspicion of foul play (in 1593). Marlowe's *Edward II* probably owed something, in return, to Shakespeare's own historical plays, but would provide very relevant associations (cf. p. 399). The links with *Faustus* itself are striking. The passages quoted in the text of our book (p. 400) reflect the influence of Mephistopheles, and one of them seems to refer to the command of Faustus—'I charge thee to return, and change thy shape; Thou art too ugly to attend on me. . . .' Faustus studied at 'Wertenberg', Hamlet at 'Wittenberg'. Early in *Faustus* there appear two scholar colleagues, *Valdes* and *Cornelius*, and it is they who lure Faustus into raising the devil. In Shakespeare's version of *Hamlet* Rosencrantz and Guildenstern appear as fellow-scholars who lure the Prince into danger (and on whom—p. 402—he redirects from the Ghost resentment at being seduced into trouble); in addition to this couple, there are the courtiers *Voltimand* and *Cornelius*, who have only one speaking scene (like Valdes and Cornelius), when they return from Norway with a message in Act II.

It is at least conceivable that *Hamlet* may in turn have influenced the further development of the Faust myth at the hands of Goethe. The German poet is said to have drawn Gretchen from personal experience (Wayne, 1949), but he was certainly deeply influenced by Shakespeare in general and *Hamlet* in particular. Valentine bears a strong family resemblance to Laertes, and like him is killed in a sword-fight. It is possible that in the full development of this myth the appearance of a heroine's brother follows logically from the starting-point of the fantasy.

16. *The Murder of Riccio and the Murder of Gowrie* (Chapter 9, p. 409).

It was a frequent habit of the early Stuart Kings of Scotland to have, like James VI, homosexual favourites. Nothing was so infuriating to feudal barons, as the history of both Scotland and England shows, and the practice was followed by deposition and/or murder of the King on several occasions in the two countries. Some accounts of the murder of Riccio suggest an exceptionally virulent outburst of hatred on the part of the murderers, who could not wait till morning, and stabbed the secretary again and again. Prominent among them was Lord Ruthven, who wore full armour and raved in a paranoid homosexual way about being touched (Sitwell and Bamford, 1938). The unfortunate Riccio may have been seduced and later thrown to the wolves by Darnley (whose own murder might then have followed for similar reasons); or he may have resisted seduction. James VI himself had Ruthven's grandsons murdered at their castle of Gowrie in circumstances which strongly suggest that one of them had just refused the King's advances; the murders were justified after the event by an elaborate and paranoid-sounding account by James of a plot against his life (Willson, 1956; this account included a very tall tale in true paranoid style about a pot of gold —see also an interesting essay 'On the Riddle of the Ruthvens' in Bushnell, 1947).

Since writing the above, we have noticed a casual reference to Darnley and Riccio as bedfellows by no less a scholar than Neale (1934, p. 125). We have let our paragraph stand. If it betrays our ignorance of Scottish history (and perhaps a partially false inference as a result), it equally serves to show the power of behavioural analysis, for we were quite ignorant of any *explicit* evidence of overt homosexuality on Riccio's part.

17. *James I and Macbeth* (Chapter 9, p. 414).

Macbeth was composed as a deliberate tribute to James I, and affords copious instances of changes in sources made for reasons of censorship (cf. Muir, 1957). Prominent among these is the exculpation of Banquo, James's ancestor, who, in the chronicles Shakespeare used, figures as Macbeth's accomplice in the murder. Duncan is vigorously played up, and Macbeth

down. The curious scene between Malcolm and Macduff, in which the former accuses himself falsely of a host of crimes, is an elaborate essay in double-take—the historical Malcolm was probably more like the 'false' picture (cf. Hume Brown, 1902). Censorship was perhaps becoming too much for the author at this point. But it is worth noting that the theme of the Queen of Scots turns up again as an inescapable association to her son: the play largely concerns a woman instigating a man to murder, and Muir (1957) believes Lady Macbeth's construction may have been influenced by a play of Seneca's on the Agamemnon story, in which a wife murders a husband!

References and Source Index

Where a book has had several editions, reference is given in general to the edition consulted by us. At the end of each entry, we have put one or more numbers in italics. These numbers refer to the page or pages of our text on which reference is made to the source concerned. The reference list can therefore be used as an index of sources.

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Addendum

This book was drafted before the first Sputnik went up. In the course of re-writing it in 1958 and further revising it since then, we have injected references to a few later events and a very few later publications (nearly all our own). In three eventful years we have read nothing which upsets any of our major conclusions, and at no stage have we attempted the impossible task of comprehensive survey of this vast field. However, a few particularly relevant recent publications and ideas may be mentioned here, as addenda to our various chapters and appendices.

Chapter 2

A counterpart to Delgado's study of the distress mechanism (p. 55) is provided by that of Olds (1958) on certain mechanisms in the brains of rats. If a rat, by pressing a lever, can obtain electrical stimulation of particular brain regions, it will repeat this activity almost indefinitely. Olds must have found a critical point in the network of positive and negative feedback inputs which normally control the level of a drive (cf. *Fig.* 13, p. 83, and p. 80 ff.). He provides some evidence that, at least in *lower* mammals, the feedbacks for different drives are situated in different parts of the brain (cf. p. 56).

The cut-off input which reduces mating behaviour in the three-spined stickleback has hitherto been ascribed to internal sensations accompanying the act of fertilization (p. 80). Bol (1959) has now shown that mere exposure of the male to the eggs will produce this effect even if no substantial ejaculation occurs.

Tinbergen has produced a wealth of further information about the evolution of threat, appeasement and courtship displays in gulls (1959*a*), and a general treatment of this subject with some suggestions about the instinctive (as opposed to intelligent) function of smiling and laughing in man, and the evolution of these acts in the primates (1959*b*).

Chapter 3

Another recent paper of Tinbergen (1957) further explores the functions of territory, and the relative roles of attack and flight in maintaining it.

The scale of research on monkey social behaviour is rapidly rising (cf. p. 138), notably in Japan. Three examples from Japan, Switzerland and the U.S.A. will suffice to illustrate this development.

Miyadi (1959) reports work on the dawn of cultural evolution in the monkey colony. New behaviour patterns, introduced by *young* individuals in their exploratory play, may spread in definite ways over a whole group, and persist in it by behavioural inheritance (in our sense); thus the behaviour of separate colonies may diverge.

A study of baboons by Kummer (1957) provides independent and unexpected support and amplification of many of our ideas (especially p. 243 ff., the whole of Chapter 5, p. 299 ff., and Appendix 13). Specially interesting are the triangular situations he describes. One is the behaviour of two subordinate monkeys threatened by the overlord; they may inhibit his attack by simulating the behaviour of a mother and her young. Another is 'protected threat'; one female will threaten another while approaching and presenting to the overlord, who proceeds to approach her sexually, and join her in threatening her rival. Even in monkeys we see the *analogues* of two kinds of jealousy (p. 322): that of the overlord (*Fig.* 23, p. 142) for a rival approaching his females (stemming from rage; in man there would be an implication of property), and that of females competing for the privilege of protected threat (stemming from fear; in man there would be an implication of a weapon: the emphasis might be on protection, as in the idealist, or secondarily on hostility, as in the use of an aggressive agent by the masochist or authoritarian—cf. p. 328). A clue to the automatic origin of such essentially triangular relationships is given by Tinbergen (1958), who describes an ambivalent posture in a paired eider duck, hesitantly threatening an intruder, which automatically causes her mate to attack the latter. In each case, the female both releases attack in the male and causes him to re-direct it, but the system is more regular and pervasive in the monkey colony, and does not depend on a fixed pair bond. With the coming of speech, the full competitive-exploitive structure could soon be reared on such foundations. A further finding of Kummer's, relevant for the motives of the protected threatener, is a tendency for subordinates to approach the overlord when frightened, even if frightened *by him*. They also show an attraction to his *fur* and an urge to groom it (one reason for his well-groomed appearance) so powerful that they will compete for the privilege and, if the activity is thwarted, re-direct it. (A literal example of this behaviour has been observed in *man*—Russell, 1959*a*).

Meanwhile Harlow (1959) has been studying the attraction of new-born monkeys to the *fur* of their mother. He has shown that they use contact with this as a base from which to explore the environment, and to which to return when frightened. If it is unavailable, they show alarm and distress. All these properties of the mother can be reproduced, in key stimulus fashion, by a 'block of wood, covered by sponge rubber, and sheathed in a terry-cloth skin'. A model of wire and hardware cloth was much less attractive. The reaction of rushing to the 'cloth mother' when frightened developed in a manner reminiscent of the following reaction in birds (p. 482), 'but the time constants are different and the monkeys seem more flexible, the effect on them is relative rather than absolute' (Russell, 1959*b*). Harlow's work shows that a parent satisfactory in this sense is a necessary condition for the young monkey to begin its exploration of the world; it has several obvious implications for human behaviour. It is also clear how beautifully the studies of Kummer and Harlow, taken together, confirm the conjectures in our Appendix 13 (p. 484 ff.).

An instructive and encouraging sequence of human behaviour in the school classroom has been reported by Nicholson (1958). 'A very tense and unpleasant situation' in a group of children 'thawed and resolved itself' when they were encouraged and assisted to explore the competitive and exploitive relations which were taking shape in the group. The effect was equally marked and beneficial on those children who had been showing idealistic and cynical behaviour. A brief lecture on the ideas of our Chapter 3 formed an integral part of this piece of group therapy.

Finally, two books highly relevant to this chapter (especially p. 180 ff. and p. 150 ff.) have recently been published by Packard (1957, 1960).

Chapter 4

In connection with our discussion of words as instinctive releasing stimuli (p. 196), we may mention some Russian experiments reviewed by Razran (1959). One worker trained human individuals to give a physiological reaction (blood coagulation) to the sound of a metronome and the flash of a lamp: the reaction was then given to the spoken *words* 'metronome' and 'lamp'. Another trained children to give an eyelid reaction to the sentences 'it is a sunny day today' and 'it is raining today', 'and found that the conditioning was very easy when the sentences corresponded to the prevailing weather but very difficult, or impossible, when the weather during the conditioning and/or testing was different

from that in the sentences'. (This shows how necessary to the would-be exploiter are the various forms of deception and distraction, if he is to impose instinctive mechanisms.) Finally, one worker claimed that reflexes of salivation conditioned to the words 'right' and 'wrong' were automatically transferred to right and wrong *statements*, for example, 'Snow melts in the spring' against, 'It is always cold in the south': here is the basis of a moralistic system. These experiments show the astonishingly high level of abstraction pressed into the pathological service of human automatism.

As a terminological footnote to our discussion of the mutual behaviour of animal parents and young, we now think the term 'filial behaviour' might usefully focus attention, in both man and animals, on instinctive or intelligent behaviour specifically adopted by the young in social interaction with their parents.

In discussing the development of intelligence (p. 221), we implied a functional distinction between two activities: setting up a general picture of the world, and developing strategies of executive behaviour in relation to this. Like fundamental and applied science at the sociological level, the two should ideally form a harmonious combination, but might in fact be differentially blocked. Support for such a division comes from the work of Pribram (1959), who has found the rudiments of both activities in monkeys, and shown that they are distributed to different regions of the cerebral cortex.

Chapter 5

It is interesting that the general observation at the opening of this chapter, about the gap in science, has been made independently, in almost identical terms, by Rapoport and Horvath (1959).

Chapter 9

Renewed study of the play, assisted by Paul Robeson's consummate performance at Stratford in 1959, has caused us to revise our opinion of Othello (pp. 300, 329), and thrown more light on Shakespeare himself. The character is confused because the poet has endowed the Moor with part of his own problems and personality, in a less convincing way than in *Hamlet*. His race and colour give Othello the status of an outcast, promoted to unstable rank only because his talents (at the time of the elopement) are indispensable to Venice. As soon as the enemy fleet is disposed of, he is politely dismissed from office, and Desdemona's father, now

backed by his fellow-oligarchs, may be expected to renew his attack on the marriage. Thus vulnerable, Othello is an easy prey to Iago, who repeatedly harps on his colour; where such discrimination is present, the path of the individual paranoid is smoothed. The Moor, unable to stand the tension with society, turns on his innocent wife.

Shakespeare was not a Moor, and the colour-bar issue is a disguise. We have seen (p. 429) that the position of anyone who deviates from the sexual code of his society (whether or not he deviates in the direction of real, intelligent sexuality) is like that of a member of a despised minority —open to blackmail, malice and every kind of persecution if he is indiscreet. Now it is unthinkable that the author of *Romeo and Juliet* never had a real love affair; but Shakespeare was a married man, and could not, in his period and culture, live openly with his love. His extraordinary discretion, to which we owe our lack of external evidence for his life, may well have covered such a relationship. Of course, he did not kill his beloved; but he or she, under the constant strain and tension of their vulnerable position, may well have killed the relationship. If this happened shortly before the composition of *Hamlet*, much of the bitterness of the subsequent plays (and many of the sonnets) would find a ready explanation. It is even possible that the ever-increasing pressure of the Puritans made it more than ever necessary for actors to avoid giving them a handle for their attack. Conventional pseudosex with prostitutes would matter little compared to an open relationship on Shakespeare's part. As one of our patients once put it, Macao is all right, it's on the beaten track, literally and metaphorically, but Tahiti is not. The whole intensely distressing débâcle might be *re*-coded into early family experience with parents, on exactly the lines we have indicated in Chapter 9; but if this conjecture is right it is to the cultural pattern of his society, and the hopeless trap he felt his marriage to be, that we can ascribe the gradual disintegration of the genius of Shakespeare.

Chapter 10

Those who suppose that scientists work like cold, mechanical computers, and do not realize how exactly like other artists they are, will find ample evidence in the well-documented book of Beveridge (1957; see p. 419). His account of four stages of creative activity, identical in scientists and other artists, is particularly illuminating.

On the proliferation of scientific literature (p. 421), see also an essay by Asimov (1957).

While we were writing of the division of science into isolated specialist disciplines (p. 421 ff.),the remedy was already at hand, and soon afterwards we received the first volume (1956) of *General Systems*, Yearbook of the Society for General Systems Research. This movement, started in Michigan, U.S.A., is making rapid strides towards the re-integration of science, and the four volumes of the Yearbook so far available are full of papers relevant to the study of human behaviour. Its founders clearly discerned and explicitly diagnosed the disease, and are setting systematically about the cure. The development was predictable, but not its pace and scope.

A tragic example of how *not* to impinge on a savage culture (p. 430) has been fully examined by Mowat (1960). The adaptable and unspecialized nature of this (Eskimo) culture, and hence of even its *adult* individual members, heightens the past tragedy but promises well for the future (cf. also p. 194), now that a serious attempt is being made to reclaim them. Some of these Eskimos, fresh 'from their ancestral sealing camps', have, '*within six months* of their arrival in a totally different world, taken over the jobs formerly held by skilled and highly trained white men in the operation of the most complicated machinery' (Mowat's italics).

A further good illustration of the principle that myth is coded history (p. 431) is provided by Keller's analysis of the Old Testament (1956).

Finally, matter very relevant to our analysis of the progress of European science (especially p. 445) is to be found in an absorbing book of Koestler (1959), who has also traced the first unmistakable science fiction story (cf. p. 425) to no less a scientist than Kepler.

Appendix 3

In a number of recent papers (1956*a, b*; 1957; 1959*a, b*), Welker has studied the emergence of exploratory behaviour in mammals (raccoons, rats, chimpanzees) and its relation to the automatisms of conditioning. Pribram's paper (1959), mentioned earlier, also contains an important suggestion about the neurophysiology of intelligence in man and its rudiments in monkeys.

Appendix 5

Throughout the book, for reasons considered in this appendix, we have used the term 'instinctive' for relatively rigid automatisms, whether innate or acquired. This usage is well supported by the evidence of

Diebschlag discussed in Chapter 2, but is further vindicated by recent interesting reports from Professor Eckhard Hess and his colleagues (Hess, 1956; personal communication; Hess *et al.*, 1959). During tests on their feeding behaviour, young chickens are shown to have innate preferences for objects of particular colour, the preferred colours being different in different breeds. By feeding particular vitamins to their mothers, the preference of chicks of a given breed can be reversed. Moreover, 'by means of differential reinforcement so that a non-preferred stimulus is rewarding and the preferred stimulus is not, the natural preference is altered—provided that this reinforcement experience takes place within' a critical period, very like that for imprinting (p. 482; the quotation is from Hess, personal communication). 'Again, the natural preference of one breed can be made to be like that of another breed . . . through this reinforcement technique'. Now the point is that the preference acquired in this way is a perfect copy of an innate preference; the two could hardly be distinguished without special knowledge. In particular, after the age of 7 days, such a preference is *irreversible* (i.e., it cannot be further modified by reinforcement procedures), *whether it was the characteristic breed preference or was produced experimentally in this way*. Thus an instinctive mechanism may be *equally* rigid, whether it is innate or acquired.

Conclusion

Much, indeed most of this book has been inevitably concerned with instinctive mechanisms in man. With at least some improvement in our understanding of these, the way should be clear for the much more exciting investigation of intelligence itself, a study likely to have wide repercussions on the whole of science. As a first step towards such an enterprise, we have recently prepared a brief sketch of some of the key problems (Russell and Russell, in press). And finally, there remains another great problem ahead, on which we have barely touched in this book: the cultural evolution of human behaviour in all its rich complexity and intricate development, from the first tool-makers to 1960—and from 1960? Here we can only end with the classic formula: *to be continued.*

<div align="right">Claire Russell.
W. M. S. Russell.</div>

23 June 1960

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Note: An entry may usually be taken to refer to words derived from the one given (thus 'exploit', 'exploitive', 'exploiter' and 'exploitee' are indexed as 'exploitation'). Articles are omitted from the titles of literary works (thus 'The Tempest' is indexed as 'Tempest'). Names of people are included when not attached in the text to a particular source reference, in which case they appear in the source index; some names appear in both lists. 'A' means that the word occurs in the Addendum (pp. 511–517). An asterisk means that only a selection of pages is entered, usually including a definition of the word thus indexed.

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